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EDITED BY

ISAAC HAYS, M.D.,

FELLOW OF THE PHILADELPHIA COLLEGE OF PHYSICIANS; MEMBER OF THE AMERICAN MEDICAL ASSOCIATION; OF THE AMERICAN PHILOSOPHICAL SOCIETY; OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA; ASSOCIATE FELLOW OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES.
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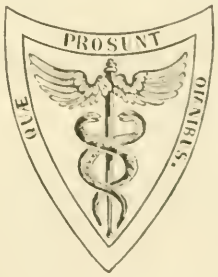

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FOR JULY 1860.

ART. I.—*A Statistical Examination of the Operation of Deligation of the Primitive Iliac Artery, embracing the Histories (in abstract) of Thirty-two Cases.* By STEPHEN SMITH, M. D., Surgeon to Bellevue Hospital, New York.

THE operation of applying a ligature to the primitive iliac artery has justly been considered one of the most important in operative surgery. The rank which this operation takes is not due to the difficulty which attends its execution, but to the dangers which threaten the extremity thus suddenly deprived of its source of nourishment. In this respect the ligation of the primitive iliac artery differs materially from the same operation on the other principal arterial trunks. A ligature placed on the common carotid deprives the head of only one-half of its supply of arterial blood; ligature of the subclavian artery, except in the first part of its course, or the femoral or external iliac, leaves important anastomosing branches to sustain in a certain degree the temporarily interrupted supply, and establish readily a sufficient collateral circulation. But when a ligature is applied to the common trunk of the vessels which supply the lower extremity with blood, we should reason *à priori* that the limb thus suddenly deprived of its nutrition must perish long before the feeble collateral circulation could be sufficiently established to afford the requisite support. And again, the aphorism that the success of the operation of securing arteries diminishes as we approach the great centre of the circulation applies with especial force to this operation; this is seen when we compare the same operation upon the external iliac artery and the common trunk, the mortality suddenly increasing from about twenty-eight per cent. in the former to seventy-seven per cent. in the latter.

The literature of the operation of the ligation of the primitive iliac artery, considered in a purely scientific light, is confined to the last third of a century. The operation of Gibson, in 1812, was one of those accidental occurrences in which the operator resorted to the only remaining expedient to save his patient, quite regardless of the nature of his operation, the manner of executing it, or the consequences which might follow. Nevertheless, it was a bold and daring operation, and must forever entitle the operator to the honour of first applying a ligature to this important arterial trunk. The procedure which Gibson was compelled to adopt, owing to the nature of the injury, and the fatal issue of his case, failed to demonstrate the feasibility and practical value of the operation, and nearly fifteen years elapsed before it was again attempted. The operation of Mott, in 1827, for aneurism of the external iliac artery, was not only the first of the kind for this disease, but it was the first which had ever been deliberately planned and executed. It had also the additional interest of being the first successful case. A new era now began in the history of this important operation, and during the thirty-three years that have since elapsed it has been performed in at least thirty-one instances, averaging nearly one case annually. And it is an interesting fact to notice in this connection that Mott's patient still lives, standing as a living monument of the skill and success of this eminent surgeon.

Having recently had occasion to apply a ligature to the primitive iliac artery for aneurism of the external iliac, my attention has been particularly called to the history of this operation. The materials for this historical resumé are widely scattered through the medical periodicals, no very complete collection having yet been made of the recorded cases, and it is on this account that our most reliable surgical authorities entertain such erroneous impressions of the general success of this operation. I have endeavoured, as far as my means of consulting medical periodicals would permit, to supply to the literature of the ligation of arteries, the history of this operation upon the common iliac, by a collection of the recorded cases, and their proper collation for study and reference. The cases are given in abstract; but still, it is believed, with sufficient detail for the proper appreciation of the interesting features of each case, and the grouping of them in classes will enable the reader to arrive at general conclusions of practical value.

This collection comprises thirty-two cases, occurring, according to the residence of the surgeons, as follows: In the United States, 15; England, 5; Ireland, 1; Scotland, 4; South America, 2; France, 2; Germany, 1; Russia, 2. There are occasional references by authors to other cases, of which, however, I have not been able to obtain any details. Guthrie states (*Commentaries*, &c., sixth edition) that he has twice tied the common iliac with success; and although he frequently alludes to the subject in his lectures and writings, the only case he adduces is the one of which an abstract is herein given. Altmuller, of Germany, is reported to have performed the

operation; but Professor Uhde, in his tables of cases of deligation of the common and the internal iliac arteries (*Deutsche Klinik*), places his case in the latter collection. According to Linhart (*Compend. der Chirurgisch. Operationslehre*, Wien, 1856, p. 93), Dumreicher has once performed this operation; but he gives only the method of operating.

The following table, in which the cases in this collection are arranged in chronological order, with the results, will be found convenient for reference:—

No.	Date of operation.	Operator.	Result.
1	July 27, 1812	Gibson, of Philadelphia	Died
2	March 15, 1827	Mott, of New York	Cured
3	July 18, 1828	Crampton, of Dublin	Died
4	December 1, 1829	Liston, of Edinburgh	Died
5	August 24, 1833	Guthrie, of London	Cured
6	April, 1836	Stevens, of New York	Died
7	May 26, 1837	Salomon, of St. Petersburgh	Cured
8	1837	Garviso, of Monte Video	Died
9	June 8, 1838	Syme, of Edinburgh	Died
10	November 29, 1838	Pirogoff, of Dorpat	Died
11	April 10, 1839	Bushe, of New York	Died
12	February 22, 1840	Deguise, of Paris	Cured
13	August 26, 1840	Post, of New York	Died
14	August 29, 1842	Peace, of Philadelphia	Cured
15	December 3, 1843	Hey, of York	Cured
16	1843	Garviso, of Monte Video	Cured
17	January 27, 1845	Stanley, of London	Died
18	June 3, 1847	Lyon, of Glasgow	Died
19	September 19, 1850	Chassaignac, of Paris	Died
20	December 29, 1851	Jones, of Liverpool	Died
21	January, 1852	Moore, of London	Died
22	March 27, 1852	Wedderburn, of New Orleans	Died
23	October 7, 1852	Uhde, of Braunschweig	Died
24	November, 1853	Van Buren, of New York	Died
25	March 20, 1157	Edwards, of Edinburgh	Died
26	March 26, 1857	Holt, of Georgia	Died
27	July 15, 1857	Meier, of New York	Died
28	July 3, 1858	Parker, of New York	Died
29	July 6, 1858	Buck, of New York	Died
30	October 6, 1858	Stephen Smith, of New York	Died
31	January 26, 1859	Stone, of New Orleans	Died
32		Goldsmith, Louisville	Died

The indications which have thus far led to the deligation of the primitive iliac artery may be divided as follows:—

1. For the arrest of hemorrhage.
2. For the cure of aneurisms.
3. For the cure of pulsating tumours, which proved to be malignant growths.
4. For the prevention of hemorrhage in the removal of a morbid growth.

These divisions I have endeavoured to preserve, although it will appear that in the great majority of cases an aneurism led directly or remotely to the operation.

GROUP I. *Reports of Eleven Cases in which the Primitive Iliac Artery was Ligated for the Arrest of Hemorrhage.*

CASE 1. *Gunshot wound of the left common iliac artery; ligature of that vessel; secondary hemorrhage; death on the fifteenth day.* By WM. GIBSON, M. D., Professor of Surgery in the University of Pennsylvania. (*American Medical Recorder*, vol. iii.)

History.—The patient was a male, æt. 38; received a wound from a musket-ball, which entered the left side of the abdomen, passed through the intestines, and, opening the common iliac artery, lodged in the sacrum.

Operation.—The operation was performed July 27, 1812, as follows: The external wound was opened to the extent of seven inches, the peritoneum cut through, the intestines turned to one side, and the ligature passed with a common probe; a ligature was also passed around the lower extremity.

Progress.—The limb below the knee was cold and insensible for several days; symptoms of peritonitis soon appeared; severe hemorrhage occurred from the wound on the ninth day, which recurred until the fifteenth day, when death took place.

Autopsy.—Evidences of severe peritonitis; the upper ligature had separated, but there was no closure of the artery; lower ligature still applied.

CASE 2. *Necrosis of femur; amputation just below trochanter minor; secondary hemorrhage; ligature of common iliac artery; death in twenty-four hours.* By ROBERT LISTON, Esq. (*London Med. Gaz.*, April 24, 1830.)

History.—The patient was a lad, æt. 8, greatly reduced by necrosis of the femur of one year's standing; amputation of the leg was performed immediately below the trochanter minor by the anterior and posterior flap method; on the seventh day after the operation hemorrhage occurred from the stump and could not be arrested, and ligature of the common iliac was determined upon.

Operation.—Incision commenced about an inch above the anterior superior spine of the ilium, two inches toward the mesial line, and continued for upward of three inches to the internal ring; no accident occurred.

Progress.—Vomiting soon after occurred; great depression followed; transfusion of blood was performed with slight relief; sank and died twenty-four hours after the operation.

Autopsy.—Ligature found applied to common iliac, half an inch above its bifurcation, surrounded by effused lymph.

CASE 3. *Aneurism of the external iliac artery; formation and separation of a slough; profuse hemorrhage; ligature of the common iliac; death.* By Dr. GUATANO GARVISO, of Monte Video, South America. (*Annal. de la Chirurgie*, November, 1844; and *Journ. de Chirurgie*, 1846.)

History.—An aneurism of the external iliac artery, size of an adult's head, and extending from the pubis to the umbilicus; an eschar had formed on the tumour, which began to separate and gave rise to abundant hemorrhage immediately previous to the operation.

Operation.—Incision four inches in length from below upwards and from without inwards, dividing the skin, the muscles, and the peritoneum; pushed upwards the intestines and omentum; the vessel being found, its peritoneal covering was opened, and a ligature applied to the artery.

Progress.—Patient died in four hours.

Case 4. *Aneurism of the right external iliac artery; ligature of that artery; secondary hemorrhage; ligature of the common iliac; gangrene of the wound; death.* By Dr. Nicolaus Pirogoff, Prof. der Chirurgie, &c., *Annalen der Chirurgischen Abtheilung des Clinicum der kaiserlichen Universität Dorpat*, 1839, and Fricke u. Oppenheim *Zeitsch.*, xiii. Hamburg, 1840, p. 247.

History.—Patient was a man, æt. ——, on whom the operation of ligaturing the external iliac artery for aneurism of that artery had been undertaken with Graefe's ligature staff; this instrument somewhat resembles the common polypus cannula, and when the ligature is applied it is tightened gradually by a screw, to which the free ends of the thread are fastened; a ligature had been passed around the external iliac, and compression was thus kept up for five days, when the dressings were changed, and the ligature and cannula removed from the artery; suppuration was free and the wound healthy, except some dead cellular tissue which adhered to the thread; no pulsation of the tumour occurred after the removal of the ligature; scarcely were new dressings applied with adhesive plaster when arterial blood was noticed escaping through them; they were instantly removed, when a profuse hemorrhage occurred; this was restrained by pressure, when the only alternative left to the operator was the application of a ligature higher up, either upon the external iliac or the common trunk.

Operation.—Incision three fingers' breadth above the former; peritoneum lacerated at two points, owing to firm adhesions which had been formed.

Progress.—On the following day symptoms very favourable; on the sixth day the edges of the second wound were found separated, the surface of the wound appeared of a dirty-gray, and some ichorous discharge was noticed; no remedies were prescribed for the next five days, although the gangrene continued to extend; on the twelfth fecal matter began to escape from the wound, and patient had a chill; on the fifteenth day hemorrhage of arterial blood occurred, and on the sixteenth day he died.

Autopsy.—Common iliac artery completely severed by the ligature; the upper portion contained a coagulum of blood and lymph adherent to the inner coat, but indicating by a thrombus at the end of the artery the seat of the recent hemorrhage; the lower portion was surrounded by a loose coagulum, in which lay the ligature quite loose; between the two points of ligature a portion of artery was found isolated; the first ligature, applied to the external iliac, had also divided the artery, and the lower portion was filled with a coagulum.

Case 5. *Aneurism of the right external iliac artery; ligature of that artery and oozing of blood from the wound after its application; ligation of the primitive iliac, and the femoral artery immediately below the pulse; recovery.* By M. Deguise, of Paris. (*Gazette Médicale*, May, 1840, and *American Journal of the Medical Sciences*, October, 1841.)

History.—Patient, a man, æt. 42, carpenter; a month before, he was suddenly seized with a pain in the right groin; on examination a tumour was found in the right iliac fossa, above the femoral arch, size of a hen's egg, pulsating, and having all the characters of an aneurism; diagnosis, aneurism of the external iliac; treatment, deligation of the external iliac.

Operation.—Incision began at the anterior superior spine of the ilium and terminated at the external side of the inguinal ring; in the dissection

the tumour was accidentally opened and free hemorrhage occurred; a ligature was placed upon the external iliac, but this vessel gave way under the ligature, and the operator at once tied the primitive iliac; a ligature was also applied to the femoral below the pubes; in this latter operation the femoral vein was also opened.

Progress.—Temperature and sensibility of limb natural; ligature on the vein separated on the fifth day, that on the common trunk on the sixteenth, and that on the external iliac on the eighteenth; wound completely healed in five weeks, and patient discharged.

CASE 6. *Aneurism of left external iliac artery; ligature of the common iliac; death.* By ALFRED C. POST, M. D., Surgeon to the New York Hospital. (*New York Journal of Medicine and Surgery*, vol. iii.)

History.—Patient, a man, æt. 20, blacksmith; had syphilis recently; nine months before observation noticed a small circumscribed tumour, size of a filbert, in the left iliac region, with marked pulsation; this swelling was treated as a bubo; subsequently the tumour enlarged rapidly after a long walk, with great pain and cramps in leg; it was then leeched. On examination, a pulsating tumour was found in the left iliac region, remarkably flat, hard, and incompressible; bellows murmur distinct; diagnosis, not aneurismal; leeches and poultices applied; fluctuation being detected, an opening was made by free incision, and finger introduced, which determined its aneurismal character; hemorrhage followed, although wound was filled.

Operation.—Tumour extended so high as to make it necessary to open the peritoneal cavity; incision vertical, about six inches in length, through abdominal parietes; opened the peritoneum.

Progress.—Pulsation ceased; pain continued severely in the limb; stomach soon became irritable, with vomiting; died twenty-four hours after the operation; no autopsy.

CASE 7. *Aneurism of the left gluteal artery; rupture of the internal iliac in an attempt to ligate it; ligature of the common iliac; death.* By Prof. C. W. F. UHDE, of Braunschweig. (*Deutsche Klinik*, No. 16, April, 1853.)

History.—Patient, a man, æt. 26; a coppersmith by trade; healthy; had rheumatism some five years before in leg; fourteen days before felt severe pain in the left hip, which was attributable partly to a blow upon the hip and partly to cold; supposing it was a return of rheumatism, he took a sweat and was cupped upon the hip; not improving, it was proposed to cauterize the rim of the left ear, but an examination of the hip detected an aneurismal tumour, which was decided to be of the gluteal artery; the patient had perceived pulsations of tumour some weeks; tumour circumscribed and elastic. On examination the pulsations were found strong and synchronous with the heart; bruit distinct; tumour cannot be diminished by pressure; was situated about the middle of the os ilii, beginning one and a half inches from the top of the trochanter major, projecting five inches, and having a vertical measurement of five inches, and a transverse of four and a half; treatment, deligation of the internal iliac artery.

Operation.—Chloroform administered, but patient became so excited and resisted it so powerfully that after six drachms were given it was stopped; incision was five inches long, commencing three-fourths of an inch above Poupart's ligament and half an inch from the epigastric artery, terminating

one and a half inches above the anterior superior spine of the ilium, about four inches from the umbilicus; the different tissues were raised until the internal iliac artery was exposed, which was found pulsating strongly; this vessel was isolated with the finger nail about half an inch from its origin, and the aneurismal needle passed under it from within outward, when, upon attempting to extricate the ligature from the needle with the left forefinger and thumb, there was a sudden hemorrhage of arterial blood, amounting to four or five pounds; the artery collapsed under the fingers; the index finger of the left hand was immediately passed up to the primitive iliac, which was also found collapsed; this vessel was immediately isolated, and a ligature passed around it with the aid of a silver catheter.

Progress.—Hemorrhage ceased; no change in tumour; limb of normal temperature; symptoms not unfavourable for first two or three days, when tympanitis and other symptoms of peritoneal inflammation occurred, and he sunk and died on the fourth day.

Autopsy.—Edges of wound separated; internal iliac ruptured upon its inner surface; signs of peritonitis; leg œdematous, calf red, showing signs of approaching gangrene.

Case 8. *Rupture of the right external iliac artery; ligature of the common iliac; death.* By A. M. Edwards, Esq., of Edinburgh. (*Monthly Journal of Medical Science*, January, 1858.)

History.—Patient was a man, æt. 27; a soldier; three months before observation noticed a pulsating tumour in right groin, of the size of an apple; suffered pain in the part, and while bathing it felt something suddenly give way in the abdomen, and a sensation of warm fluid flowing towards the seat of pain; pain greatly increased. On examination a tumour could be traced in the iliac region, extending from Poupart's ligament to the umbilicus, without defined limits, and pulsating; pain in the abdomen intense; on the following day tumour extended to false ribs and umbilicus; skin red; symptoms aggravated; diagnosis, iliac aneurism.

Operation.—Chloroform administered; incision began two inches internal to the anterior superior spine of the ilium and terminated at the last rib; no accident.

Progress.—Pulsation ceased; temperature of leg reduced, but recovered its warmth; second day had delirium tremens, but soon recovered; sixteenth day ligature came away; wound healthy; continued to do well until the twenty-fifth day, when hemorrhage occurred and quickly proved fatal.

Autopsy.—Peritoneum adherent and dark coloured; common iliac artery divided at point of ligation, both ends tapering, and plugged; an aneurism size of an orange on external iliac, in which was a recent rent, the seat of the hemorrhage.

Case 9. *Aneurism of the ischiatic artery; ligature of this vessel, and, subsequently, of the right common iliac; death.* By Wm. J. Holt, M. D., late Surgeon in the Crimean War. (*Southern Medical and Surgical Journal*, October, 1859.)

History.—Patient was a man, æt. 24; health good; fell upon hip when four years old, five years after first noticed a small tumour in region of tuberosity of ischium, which has steadily increased, and latterly has pulsated. On examination, a tumour of the size of a goose's egg was found upon the inner part of the nates, near the tuberosity of the ischium and extending upward in the course of the ischiatic artery, protrudes two inches, is conical,

soft, skin blue, pulsation visible, aneurismal thrill marked; ligature applied to the ischiatic artery by Prof. Dugas; on eighth day severe hemorrhage occurred; on the tenth hemorrhage recurred, and it was decided to apply a ligature to the common iliac.

Operation.—This operation was performed by Dr. Holt; no account given; peritoneum wounded.

Progress.—On second day temperature of limb normal; died on the third day. No autopsy.

CASE 10. *Stab in the inguinal region; profuse hemorrhage; ligature of the right common and internal iliac arteries; death.* By WILLARD PARKER, M. D., Surgeon to the New York Hospital. (Communicated.)

History.—Patient, a man, æt. 21, carriage-maker, while sporting with a companion fell upon a knife having a broad blade, which entered the right groin midway between the symphysis pubis and anterior superior spine of the os ilii, making a wound an inch in length in the direction of Poupart's ligament; severe hemorrhage occurred, and a knuckle of intestine protruded from the wound; the physician who was called reduced the intestine, and applying a bandage firmly, sent him to the hospital; on removing the dressings alarming hemorrhage occurred, which was controlled by the finger of an assistant, passed into the wound and pressed upon the common iliac; in consultation it was deemed advisable to operate with reference to deligation of the common iliac artery.

Operation.—Incision began a little below the last false rib and terminated at the wound made by the knife; no accident; ligatures were applied to the common and internal iliac arteries; a large quantity of blood was pressed out of the peritoneal cavity.

Progress.—Patient, who was in a profound collapse from the loss of blood, scarcely rallied under the free use of stimulants, and died ten hours after the operation.

Autopsy.—Internal epigastric artery wounded, and peritoneum opened by the stab of the knife; peritoneal cavity partially filled with coagula; peritoneum not otherwise injured.

CASE 11. *Aneurism of the left femoral artery; ligature of the femoral, profunda, external and common iliacs; death.* By GURDON BUCK, M. D., Surgeon to the New York Hospital. (*New York Journal of Medicine*, November, 1858.)

History.—Patient, a man, æt. 40; mulatto; dissipated; first noticed a pulsating tumour in the middle third of the left thigh a month before. On examination a tumour was found occupying the middle of the thigh, extending from four inches below Poupart's ligament to the point where the femoral artery pierces the adductor magnus muscle; raised about an inch, and pulsating freely; bruit loud; on the night following tumour rapidly extended, as if ruptured; the femoral artery was tied, and as hemorrhage occurred from a wound of the artery the incision was extended and ligatures successively applied to the external iliac and at two points of the profunda; several days after the separation of the ligature from the external iliac severe hemorrhage again recurred, and it was decided to apply a ligature to the common iliac.

Operation.—Chloroform administered; incision continued upward in continuation of the former wound about four inches; peritoneum wounded.

Progress.—Second day limb of normal temperature; symptoms favour-

able until seventh day, when hemorrhage occurred from the wound; arrested by pressure; on thirteenth day ligature came away; on the fifteenth and sixteenth days hemorrhage recurred; death on the seventeenth day.

Autopsy.—Peritoneum not inflamed; large blood-clot extended upward from the right iliac fossa to liver; blood also extravasated into parts adjacent to wound; common iliac divided across and ends retracted.

Group II. *Reports of Fifteen Cases of Deligation of the Primitive Iliac Artery for the Cure of Aneurism.*

Case 1. *Aneurism of the external iliac artery; ligature of the common iliac: recovery.* By V. Mott, M. D., Prof. of Surgery in Rutgers Medical College. (*American Journal of the Medical Sciences*, vol. i. p. 156.)

History.—Patient, a man, æt. 33, a farmer, temperate, healthy, accustomed to lifting heavy weights; first noticed a tumour in the lower part of the abdomen, two weeks before observation. On examination the abdomen on the right side was found enlarged from the crural arch to the umbilicus by a pulsating tumour; had enlarged very rapidly; caused excessive pain.

Operation.—Incision began just above the external abdominal ring and was carried in a semicircular direction half an inch above Poupart's ligament, and terminating a little beyond the anterior spinous process of the ilium, in extent about five inches; this incision had to be enlarged upwards of three inches subsequently; peritoneum was raised upon the finger passed into the internal abdominal ring; circumflex ilii artery was divided; no accident.

Progress.—Pulsation ceased; temperature of the limb fell, but was soon restored; no unfavourable symptoms occurred; ligature separated on the eighteenth day; convalescence complete on the forty-fifth day.

Case 2. *Aneurism of the right external iliac artery; ligature of the common iliac; death.* By Philip Crampton, M. D., F. R. S., Surgeon General to the Forces in Ireland. (*Medico-Chirurg. Trans.*, vol. xvi.)

History.—Patient, a man, æt. 30, healthy, soldier; first noticed tumour nine months before, after wrestling; gradually increased, with much pain. On examination, tumour was found extending from about three inches below the crural arch to within about three inches of the umbilicus, divided by Poupart's ligament; pulsation and thrill distinct at certain points.

Operation.—Incision began at the anterior extremity of the last false rib; proceeding directly downward to the os ilium, it followed the line of the crista ilii, keeping a very little within its inner margin, terminating at the anterior superior spine; no accident; ligature of moistened catgut used.

Progress.—Pulsation ceased; tumour immediately diminished one-third; temperature of limb reduced slightly; fifty hours after the operation pulsation returned in the tumour, but no thrill; pulsation continued free until the eighth day, when the ligature separated; pulsation became nearly as free as before the operation, but wound nearly closed on the tenth day, when sudden and profuse hemorrhage occurred from the wound, which proved almost instantly fatal.

Autopsy.—Artery at the point of ligation surrounded by an abscess; it was not cut through, but its internal coats were divided; aneurism far advanced towards a cure; tumour of the size of a walnut; artery for six inches above the sac filled with a firm coagulum.

Case 3. *Aneurism of the right external iliac artery; ligature of the common iliac; death.* By Alexander H. Stevens, M. D., of New York. (Communicated.)

History.—Patient, a man, a farmer, entered the New York Hospital with an ill-defined aneurismal tumour in the right inguinal region.

Operation.—Peritoneum wounded.

Progress.—Death ten days after operation.

Autopsy.—Peritonitis.

Case 4. *Aneurism of the left external iliac artery; ligature of the common iliac; recovery.* By M. Salomon, of St. Petersburgh. (*Zeitschrift fur die gesammte Medicin*, Band 12, Heft. 3, 1839.)

History.—Patient, a man, æt. 38, received a kick from a horse in the left groin six months before, shortly after which a tumour appeared in the inguinal region. On examination, the tumour was found to extend from four fingers' breadth below to the same distance above Poupart's ligament, and from the anterior superior spine of the ilium to the linea alba; pulsations strong; skin thin and distended.

Operation.—Incision began an inch on the inner side of the anterior spinous process, and ran parallel with the inferior epigastric artery to within an inch of the last false rib, being four and a half inches long; no accident.

Progress.—Pulsation ceased and tumour rapidly diminished; limb became cool at first, but regained its natural warmth; on the third day a gangrenous eschar formed on the foot, and subsequently others appeared; general condition favourable; ligature separated on the thirty-second day; convalescence complete at the end of two months.

Case 5. *Aneurism of the right external iliac artery; obscurity delaying an operation; mortification of the limb; ligature of the common iliac and amputation of the thigh; death.* By James Syme, Esq., Prof. Clinical Surgery. (*Edinburgh Medical and Surgical Journal*, October, 1838.)

History.—Patient, a man, æt. 31, a tailor, unhealthy, first noticed a pulsating tumour in the right groin three months before, rapidly increased. On examination a large tumour was found occupying the whole space between the pubes and the crest of the ilium, tense and elastic, having a very obscure pulsation in some parts, aneurismal bruit distinct; tumour rapidly enlarged; limb became œdematous; pain in knee intolerable; the leg at length became cold, and incipient mortification apparent; pulsation of tumour distinct and the aneurismal character well-marked, when it was decided to ligate the common iliac.

Operation.—Incision began a little above the external abdominal ring and extended in a curved direction upward six or seven inches; no accident.

Progress.—Tumour became smaller and softer; mortification extended; on third day limb was amputated; death on the fourth day.

Autopsy.—Signs of peritonitis; nodular inequalities of the surface of tumour due to enlarged glands; external iliac and femoral involved in the aneurism.

Case 6. *Aneurism of the right external iliac artery; ligature of the common iliac; recovery.* By Edward Peace, M. D., Surgeon to the Pennsylvania Hospital. (*American Journal of the Medical Sciences*, April, 1843.)

History.—Patient, a man, æt. 36, healthy; first noticed the tumour five

months before, a few days after having "felt something give way in the right groin," while lifting for a wager; suffered from pain in the part and along the course of the crural nerve, but continued to labour until a fortnight before observation. The tumour was of pyriform shape, extending from three inches below to three inches above Poupart's ligament, and divided into two lobes by that ligament; pulsation free; thrill faint; very sensitive on pressure; skin over tumour red; countenance of patient anxious.

Operation.—Incision seven inches in length, commencing on a level with the umbilicus and two inches from median line, terminating half an inch above the external ring; no accident.

Progress.—Pulsation of tumour ceased; entire limb below the middle of the thigh at once became cold and insensible; but gradually the natural temperature and sensibility returned to the leg and foot on the second and third days. On the fifth day the tumour became hot and swollen, but these symptoms soon disappeared; ligature separated on the thirty-second day; five months after the operation the tumour had diminished to the size of a filbert; no return of pulsation was ever noticed.

Case 7. *Aneurism of the left external iliac artery; ligature of the common iliac; recovery.* Richard Hey, Surgeon to the York County Hospital. (*Medico-Chirurgical Transactions*, vol. xxvii.)

History.—Patient, a man, æt. 41; first noticed a tumour in the left groin twelve days before observation; on the night following its recognition was suddenly seized with severe pain, and the tumour rapidly enlarged. On examination the tumour was found to have the characteristic signs of aneurism; continued to enlarge rapidly, and finally occupied the whole of the left iliac fossa, having a vertical diameter of six inches and a transverse diameter of six and a half inches, and projecting at least three inches.

Operation.—Incision began two and three-quarters inches above the umbilicus, three inches to the left of the median line, and was six inches in length, the lower extremity being moderately curved; no accident.

Progress.—Temperature of the limb but slightly affected; no unfavourable symptom occurred; ligature separated on the twenty-eighth day; complete convalescence about the sixth week.

Case 8. *Aneurism of the external iliac artery; ligature of the common iliac; death.* By Dr. Guatano Garviso, of Monte Video, South America. (*Annal. de la Chirurgie*, November, 1844.)

History.—Aneurism of the external iliac, extending so high as to prevent the application of a ligature to that artery.

Operation.—Incision made with a view to secure the external iliac.

Progress.—Ligature separated on the thirty-sixth day; recovered.

Case 9. *Aneurism of the left external iliac artery; ligature of the common iliac; death.* By Wm. Lyon, Esq., Lecturer on Surgery, &c. (*Monthly Journal of Medical Sciences*, vol. viii.)

History.—Patient, a man, æt. 53, healthy; first noticed œdema of his left leg, and soon after had some pain in the hip and thigh, which led to the detection of a small aneurismal tumour in the inguinal region.

Operation.—Incision seven inches in length, commencing two inches within the anterior superior spinous process; no accident.

Progress.—Pulsation at first ceased, but soon returned feebly; temperature of limb reduced, with numbness; died fifty-four hours after operation.

Autopsy.—No trace of peritonitis; tumour not more than one-third the size it was before the operation; lay beneath Poupart's ligament; parts in the track of the wound healthy.

CASE 10. *Aneurism of the right external iliac artery; ligature of the common iliac; death.* By ELLIS JONES, Esq., Surgeon to the Northern Hospital, Liverpool. (*London Journal of Medicine*, vol. iv.)

History.—Patient, a man, æt. 34, coal-heaver; felt something give way in the groin four months before observation, but did not notice a tumour for three months after; no pain. On examination a tumour was found, size of a cricket-ball, of a round shape, above Poupart's ligament, pulsating freely; fourteen days after the tumour had increased, filled the iliac fossa, very painful, skin inflamed.

Operation.—Chloroform administered; incision began two and three-quarter inches above the navel, and a little more than three inches on the right of the median line, and was carried down five inches; no accident.

Progress.—Pulsation ceased; temperature of limb unchanged; second day erysipelas appeared at the wound, and gradually extended over the hip, causing sloughs and purulent collections; fourteenth day intestines appeared in wound; death on fifteenth day.

Autopsy.—No appearance of peritonitis; aneurismal sac empty, and its coats in a gangrenous state; surrounding tissues, iliac, and gluteal muscles converted into a soft, pulpous mass; common iliac healthy.

CASE 11. *Aneurism of left femoral and external iliac artery; ligature of the common iliac; death.* By A. J. WEDDERBURN, M. D., Surgeon to the Charity Hospital, New Orleans. (*New Orleans Medical and Surgical Journal*, May, 1852.)

History.—Patient, a man, æt. 25; first noticed the tumour three months before; rapidly increased. On examination a large aneurismal tumour was found extending above and below Poupart's ligament; thigh flexed on body; pain severe.

Operation.—Incision began four or five inches above Poupart's ligament and extended in a slight curve to near the anterior superior spine; severe hemorrhage occurred; no accident.

Progress.—Pulsation ceased; on second day limb was cold and insensible below the knee, with livid spots; gangrenons; on fourth day gangrene extended to hip; death on fourth day.

Autopsy.—No appearances worthy of notice.

CASE 12. *Aneurism of the right external iliac artery; ligature of the common iliac; suppuration of the sac; death on the fourth day.* By W. H. VAN BUREN, M. D., Prof. of Anatomy in the Univ. Med. College, N. Y. (*New York Journal of Medicine*, January, 1857.)

History.—Patient, a male, æt. 46, of irregular habits, addicted to the inordinate use of tobacco, stimulants, and opium; very obese; tumour first recognized by patient four years before, large as a hickory nut, and was of spontaneous origin; at time of coming under observation it was the size of a child's head at birth, somewhat flattened upon its surface, occupying the fold of the groin, and extending upwards beneath Poupart's ligament, in the course of the external iliac artery. An operation was declined by the patient for six months, during which time the tumour increased greatly in size, became the seat of severe pain, and finally began to threaten rupture.

Operation.—Chloroform administered; incision eight inches in length, commencing about midway between the most prominent point of the iliac crest and the umbilicus, and terminating below over the external abdominal ring; no accident.

Progress.—Pulsation ceased; temperature of limb fell, but soon recovered its normal warmth; symptoms favourable until the close of the second day, then a chill occurred, when the tumour, which had diminished to about one-third its original size, became tender and painful; restlessness followed, his strength failed, and death took place at the close of the fourth day.

Autopsy.—The tumour and the parts around it were found to have been the seat of inflammation and suppuration; no signs of peritonitis; artery above and below the ligature filled with a firm coagulum.

Case 13. *Aneurism of the right external iliac and femoral arteries; ligature of the external iliac; return of pulsation in the aneurism without enlargement or inconvenience from the tumour for two years; sudden increase in the aneurism; ligature of the primitive iliac; death.* By Stephen Smith, M. D., Surgeon to Bellevue Hospital, N. Y. (*New York Journal of Medicine*, March, 1860.)

History.—Patient was a female, æt. 33, healthy; two years ago, while lifting a tub of water, having one knee pressing against the tub, she felt something snap in her right groin, but had no inconvenience until evening, when that limb became stiff and lame. On the following day this stiffness was much increased, and three or four days later she experienced sharp, stinging pains over the anterior surface of that thigh; several days after this she first noticed a small tumour, the size of an almond, just below Poupart's ligament; about three weeks after (October 4, 1856) she entered Bellevue Hospital, and came under the care of Dr. Lidell. The tumour was the size of a hen's egg, and being recognized as an aneurism, the external iliac artery was tied. She recovered from this operation, the tumour diminishing somewhat in size at first, but pulsation soon after returned. She refused further treatment, and left the hospital. She was readmitted August 21, 1858, the tumour having again begun to increase, and causing great pain down the leg. On examination the tumour was found to be somewhat flattened, more than half of its volume being below Poupart's ligament, and having a diameter of about three inches; pulsation and bruit very distinct; pain down the front and inner aspect of thigh intense. After remaining in the hospital about a month, during which the tumour gradually enlarged, and her sufferings increased in severity, it was determined to apply a ligature to the primitive iliac.

Operation.—Chloroform administered; incision commenced near the extremity of the last rib and terminated at the internal abdominal ring, the upper two-thirds of the incision being straight and the lower third curved inwards, the curve being quite sharp near the termination of the wound. Some difficulty was experienced in the dissection, owing to the agglutination of the tissues following the former operation; no accident; not more than an ounce of blood lost; primitive iliac enlarged to nearly the size of the normal abdominal aorta.

Progress.—Pulsation ceased; temperature of limb normal; pain gradually diminished; opium was freely administered in anticipation of peritonitis; the external wound united by first intention, except where occupied by the ligature; suppuration became free at this point; symptoms continued favourable until the thirtieth day, when slight hemorrhage occurred

at the wound, the ligature being still firm; hemorrhage recurred for several days; ligature separated on the thirty-sixth day, with free discharge of pus; no hemorrhage for a week, during which time the patient's general condition rapidly improved. On the fortieth day blood again appeared in the wound, and from that time to her death, on the forty-eighth day after the operation, the hemorrhage became more and more frequent, and though frequently almost instantly controlled by pressure upon the abdominal aorta, the total amount of blood lost was very great.

Autopsy.—External wound united firmly, except at the lower point; a large abscess occupied the iliac fossa, filled with grumous blood and communicating with the artery at the point where the ligature was applied; artery completely severed by ligature, the upper extremity being partially filled with a coagulum, but allowing the escape of the injection thrown into the aorta: aneurism in an advanced state of consolidation.

CASE 14. *Aneurism of left external iliac and femoral arteries; ligature of common iliac with silver wire; death.* By WARREN STONE, M. D., Prof. of Surgery in University of Louisiana. (*New Orleans Medical and Surgical Journal*, September, 1859.)

History.—Patient, a man, æt. 36; first noticed the tumour eight months before observation. On examination it was found extending from two inches below to two and a half inches above Poupart's ligament; pulsation strong.

Operation.—Incision was made from upper edge of tumour in the course of the linea semilunaris upward to the cartilage of the ribs; peritoneum lacerated; silver wire passed under the artery by means of a silk ligature, and ends cut close.

Progress.—Limb became cooler, but soon recovered its natural warmth; tumour diminished favourably, but a severe dysentery supervened, from which the patient sank, and died on the twenty-sixth day after the operation. No autopsy made.

CASE 15. *False aneurism from ulceration of the femoral artery in the groin, consequent upon the pressure of the dislocated head of the os femoris; ligature of the primitive iliac artery; death.* By MIDDLETON GOLDSMITH, M. D., Prof. of Surgery in the Kentucky School of Medicine. (*Louisville Medical Journal*, February, 1860.)

History.—Patient, a man, æt. 40, labourer; had his left femur dislocated; the head of the bone being thrust under Poupart's ligament overrode the margin of the pelvis in such a manner as to underlie the femoral artery; it remained unreduced for two months, when he came under observation with a diffused swelling occupying the groin, filling the iliac fossa, and extending to the middle of the thigh; feeble pulsation; tumour appeared a few days after accident; pain severe; diagnosis, aneurism; treatment, ligature of common iliac.

Operation.—Patient etherized; incision began at edge of rectus on left side, traversed the course of the common iliac obliquely, and terminated near the crest of ilium; peritoneum freely opened.

Progress.—Natural warmth returned to limb within twenty-four hours; progressed favourably until the fourth day; opium freely administered; delirium supervened on third day, which continued until the fifth day, when vomiting occurred, and death.

Autopsy.—Wound nearly healed; peritoneum adherent where incised, but no trace of peritonitis; ligature in place; firm coagula extending above

to aorta, and below into external and internal iliac; femoral and external iliac arteries perforated to the extent of an inch on the postero-external aspect; head of femur in cavity of aneurism.

Group III. *Reports of Four Cases of Deligation of the Primitive Iliac Artery for the Cure of Pulsating Tumours simulating Aneurisms.*

Case 1. *Malignant tumour simulating aneurism; ligature of the right common iliac artery; recovery.* By G. J. Guthrie, Esq., Surgeon to Westminster Hospital. (*London Medical Gazette*, vol. ii., 1834.)

History.—Patient, a female, æt. —, had long suffered from pain in the hip; received an injury to the hip, and soon after noticed a pulsating tumour, size of a hen's egg; rapidly increased for a year. On examination, the tumour was found of the size of an adult person's head, situated upon the right buttock, and so inconvenient as to prevent her lying upon that side; diagnosis, aneurism.

Operation.—Incision began about an inch below and inside of the anterior superior spine of ilium, and was carried upward and diagonally inward, terminating above the umbilicus, in length between six and seven inches; peritoneum opened at both extremities of wound.

Progress.—Pulsation ceased; temperature of limb fell slightly, but by friction was soon restored; no bad symptoms; tumour diminished one half in a month; ligature separated on the twenty-sixth day; at the end of two months was entirely recovered from operation.

The tumour began again to enlarge at the end of three or four months, and she died about eight months after the operation. The post-mortem examination revealed the existence of an immense encephaloid tumour, occupying the right iliac region.

Case 2. *Malignant tumour simulating an aneurism: ligature of the left common iliac artery; death.* By Edward Stanley, Esq., Surgeon to St. Bartholomew's Hospital. (*Medico-Chirurgical Transactions*, vol. xxviii.)

History.—Patient was a man, æt. 42, a butler by profession, temperate, complexion sallow; had pain in left hip for last four years, which was considered rheumatic. On examination, the tumour was found connected with the ilium in about the anterior half of its extent, projecting from both surfaces, but principally from the abdominal, extending upward to the crista, downward to Poupart's ligament, and along its outer half into the cavity of the abdomen; portion of crista which bounded tumour above was thickened, and a small piece of movable bone was discovered, involved in the tumour, near the anterior superior spine; pulsation everywhere marked, and a bellows sound plainly recognized; diagnosis, aneurism.

Operation.—No account of the operation is given.

Progress.—Forcible pulsation noticed in the circumflex ilii artery immediately after the operation; limb rendered numb and cold, but recovered its temperature and sensation; second day vomiting; sank and died on the morning of the third day.

Autopsy.—Peritoneum showed marked effects of inflammation; track of wound suppurating; tumour malignant, growing from the periosteum; through the anterior two-thirds of the tumour the ilium was only perforated with foramina, but in the remaining third the integrity of the bone was destroyed, being separated into loose fragments, and a communication through to the opposite surface being thus opened.

CASE 3. *Malignant tumour simulating aneurism of the left external iliac artery; ligation of the common iliac; death.* By C. H. MOORE, Esq., Surgeon to the Middlesex Hospital. (*Lancet*, Feb. 21, 1852.)

History.—Patient was a man, æt. 52; had pain and swelling of the left leg; leg had been œdematous for ten weeks previously, and large veins permeated the skin; it was soon discovered that this œdema and pain were due to the existence of a large pulsating tumour in the left iliac region; its boundaries were easily defined through the abdominal walls; pulsation strong and distinct, and synchronous with the heart; diagnosis, aneurism of the external iliac; increased rapidly in size, and pulsations more marked.

Operation.—No account given.

Progress.—Pulsation ceased; symptoms favourable for a short time; died a few days after the operation.

Autopsy.—A large encephaloid tumour was found lying in contact with the iliac arteries.

CASE 4. *Osteo-aneurism of the pelvis; ligation of the right common iliac; death.* By C. TH. MEIR, M. D., Surgeon to Bellevue Hospital. (*American Medical Gazette*, May, 1859.)

History.—Patient, a man, æt. 59, workingman in a jewelry-shop, has felt great pain from the right groin to knee for last two years; six months ago fell upon right hip, and was so disabled as to be compelled to use crutches; a week before observation made a misstep, which rendered his foot useless. On examination there was found shortening of the leg, the trochanter being nearer the anterior superior process, with crepitus over the trochanter; right iliac fossa filled with a large, somewhat yielding, pulsating tumour, over which the external iliac artery could be traced; hip, from crest of ilium to fold of nates, and from Poupart's ligament across to sacrum, much enlarged; swelling had no definite boundary; remainder of ilium traceable, but of twice its normal size; strong pressure in the iliac fossa caused a perceptible protrusion upon the external surface of ilium; temperature of limb lower than the other; pulsations strong over the entire os ilium, at the ischiatic notch, giving to the fingers the feeling of friction; pressure over the iliac artery caused a diminution, but not cessation, of the bellows sound; diagnosis, doubtful.

Operation.—Chloroform administered; incision began two fingers' breadth above and within the anterior superior spinous process, and terminated half an inch above the middle of Poupart's ligament; no accident.

Progress.—Pulsation ceased; temperature of leg lower than the left; second day loss of sensation in lower part of thigh; discoloration of wound and thigh; third, discoloration increasing; fourth, wound dark, neighbouring parts inflamed; toes and sole of foot black; gangrene of leg continued to extend until it reached the hip, when death took place, twelfth day after the operation.

Autopsy.—Recent peritonitis and slight adhesion of intestines; large arteries of pelvis in normal condition; right half of pelvis involved in the disease, which consisted of the residue of the original bony material and of cavernous tissue of new formation, in which were imbedded loose bones; acetabulum destroyed; head of femur a mere shell, and neck destroyed.

Group IV. *Unclassified Cases.*

Case 1. *Aneurism by anastomosis of the labia pudenda of an infant; ligature of the right common iliac artery; death from erysipelas on the thirty-seventh day.* By George Bushe, M. D. (*New York Medico-Chirurgical Bulletin*, vol. i.)

History.—Patient was a female, æt. six weeks and four days; tumour of a vermilion colour, mammillated, compressible, pulsating, elevated half an inch, involving all the left side of the perineum, verge of the anus, rectum, labium, vagina, urethra; disease has existed from birth, but did not at first extend over the perineum; has two ulcerated points, from which severe and dangerous hemorrhage has occurred five times; one attack attended with slight convulsions; last hemorrhage controlled by pressure; is pale, nurses well.

Operation.—Incision began at the junction of the middle and external third of a line drawn from the anterior superior spine of the ilium and umbilicus and extended in a curved direction to the internal abdominal ring; this incision was afterward enlarged half an inch upward; several arteries required the ligature; no accident.

Progress.—Pulsation of tumour ceased; limb slightly colder, and on the second day 6° lower temperature than the other; continued to do well until the tenth day, when erysipelas of the thigh made its appearance: eleventh day, wound slightly erysipelatous; thirteenth day, ligature separated, and the tumour had nearly disappeared; twenty-second day, wound closed, matter forming at the knee, health failing; sunk and died on the thirty-seventh day from the suppuration about the knee and a renewed attack of erysipelas.

Autopsy.—Right common iliac artery obliterated from point of ligation to bifurcation of aorta.

Case 2. *Encephaloid tumour of the internal and superior aspect of the thigh, extending to the foramen ovale; ligature of the primitive iliac; removal of the tumour; death.* By E. Chassaignac, Surgeon to l'Hôpital St. Antoine, Paris. (*Bulletin de la Société de Chirurgie de Paris.* Paris, 1851.)

History.—Patient was a man, æt. 49, a cooper, of good general health; first noticed a swelling on the inner and upper part of the left thigh; pain is felt to the lower third of the thigh; the tumour soon enlarged to the size of a large walnut, and then remained four months without any increase of volume; the patient continued at his occupation during this period without inconvenience; the two following months the tumour, without appreciable cause, increased steadily in size, attended with lancinating pains and a feeling of tension extending to the foot; during the last three weeks the tumour increased very rapidly, its volume becoming enormous, and so interfering with the patient that he was obliged to abandon his work and enter the hospital. On examination a tumour was found at the junction of the left thigh and the pelvis, towards its superior and internal part, extending obliquely from the middle of the crural arch downward twelve centimetres, and terminating posteriorly at the postero-internal part of the thigh, on a level with the tuberosity of the ischium; it seemed to be developed in the course of the descending branch of the os pubis and of the ascending branch of the os ischii; it did not appear to extend into the pelvis by any prolongation; it was but slightly movable, apparently adherent to bone, was covered by healthy skin, and was under the adductor muscles; to the touch it was solid, without fluctuation; no bruit perceptible or pulsation: the

femoral artery runs along its external border, its pulsations being well-marked above; examination per rectum reveals nothing; the leg preserves its normal heat and sensibility; no œdema; exploration with a fine trocar at two different points obtained only blood; diagnosis, an encephaloid tumour attached to the os ischii and the descending ramus of the os pubis, without prolongations into the pelvis, but surrounding the foramen ovale; treatment, extirpation of the morbid growth.

In order to prevent the hemorrhage which must necessarily attend the removal of a tumour so large and in that situation, M. Chassaignac proposed to ligate the primitive iliac artery, and thus cut off the supply of blood through the hypogastric artery; a ligature applied to the femoral would only cause a reflux of blood through the surrounding arteries, and hence increase rather than diminish the dangers of severe hemorrhage.

Operation.—Chloroform administered; incision began an inch above the inguinal ring and extended upward four inches, terminating about a finger's breadth from the false ribs; no accident. The tumour was then removed with scarcely the appearance of blood; operation lasted half an hour.

Progress.—The patient being long under the influence of chloroform was pale, pulse small but regular, complained of sharp pains in the knee and thigh of the affected side; five hours after operation the heat of the limb was partially restored, but did not equal that of the opposite side; thirst excessive; painful cramps; in the night patient became feeble, delirium supervened, and he died at four o'clock on the following morning.

Autopsy.—Peritoneum not injured; no trace of hemorrhage; ligature applied at the point where the primitive iliac divided into the external and internal branches; a fibrinous clot filled the artery above the ligature, and similar clots filled both the external and internal iliacs.

In order to present these cases in a proper relation for study and reference the following tables are introduced:—

GROUP I.—*Summary of Eleven Cases of Deligation of the Primitive Iliac Artery for the Arrest of Hemorrhage.*

No.	Operator.	Sex.	Age.	Side.	Disease or accident.	Result.	Date of death.	Cause of death.
1	Gibson	M.	38	L.	Gunshot wound of external iliac artery	Died	15th day	Hemorrhage
2	Liston	M.	8	R.	Hemorrhage after amputation of thigh	Died	24 hours	Exhaustion
3	Garviso	...	...	...	Hemorrhage from bursting of aneurism	Died	4 hours	Exhaustion
4	Pirogoff	M.	...	R.	Hemorrhage after ligature of external iliac	Died	14th day	Hemorrhage
5	Deguise	M.	42	R.	Hemorrhage after ligature of the external iliac	Cured		
6	Post	M.	20	L.	Hemorrhage from an incision into an aneurism	Died	24 hours	Exhaustion
7	Uhde	M.	26	L.	Rupture of internal iliac in applying ligature	Died	4th day	Peritonitis
8	Edwards	M.	27	R.	Rupture of an aneurism of external iliac.	Died	25th day	Hemorrhage
9	Holt	M.	24	R.	Hemorrhage from opening a gluteal aneurism	Died	3d day	Exhaustion
10	Parker	M.	20	R.	Hemorrhage from a stab in the groin	Died	10 hours	Exhaustion
11	Buck	M.	40	L.	Hemorrhage after ligature of external iliac	Died	17th day	Hemorrhage

Remarks on the first Group.—Upon reviewing this group of cases the following points of interest are presented:—

1. *Disease or Accident.*—Of eleven cases of deligation of the primitive iliac artery for the arrest of hemorrhage, in two cases the operation was performed for wounds in the inguinal region, of which one involved the external iliac and the second the internal epigastric, both proved fatal, one from secondary hemorrhage, the other from exhaustion consequent upon the primary hemorrhage; in one for secondary hemorrhage from stump after amputation of thigh, death from immediate exhaustion; in two from rupture of an aneurism, one internally and the second externally, both fatal, the former from secondary hemorrhage and the latter from immediate exhaustion; in three from hemorrhage after ligation of the external iliac, one cured, the other two fatal from secondary hemorrhage; in two from incisions into aneurismal tumours, both fatal from immediate exhaustion; in one from rupture of internal iliac, in attempting its ligation for aneurism of the gluteal artery.

2. *Result.*—Of eleven cases, ten were fatal, one recovered, being a mortality of nearly 91 per cent. The success of this operation upon the primitive iliac artery, for the causes above assigned, presents a striking contrast with the operation upon the external iliac for the same class of diseases and accidents. Of fourteen cases of deligation of the external iliac artery for the arrest of hemorrhage, I find that eleven were successful and three fatal, the mortality being about 21½ per cent.

3. *Date of Death.*—The earliest period of death after the operation was four hours; latest, twenty-fifth day; average, eight days.

4. *Cause of Death.*—Secondary hemorrhage, four; immediate exhaustion, five; peritonitis, one.

A proper appreciation of the circumstances under which the primitive iliac artery has been tied for the arrest of hemorrhage will lead the discriminating surgeon, notwithstanding the excessive mortality that has thus far attended its performance, to accord to this operation an important place among the resources of his art. In the immediately fatal cases the patient was already excessively prostrated by the hemorrhage, and the operation has been performed when a fatal termination appeared inevitable: but even in these cases it has relieved the most threatening symptoms, and given promises of successful results. In the remaining cases the fatal issue has been due to causes unconnected with the operation itself, but referable to some intercurrent affection.

GROUP II.—*Summary of Fifteen Cases of Deligation of the Common Iliac Artery for Aneurism.*

No.	Operator.	Sex.	Age.	Seat of aneurism.	Result.	Date of death.	Cause of death.
1	Mott	M.	33	Right external iliac	Cured		
2	Crampton	M.	30	Right external iliac	Died	10th day	Hemorrhage
3	Stevens	M.	...	Right external iliac	Died	2d day	
4	Salomon	M.	38	Left external iliac	Cured		
5	Syme	M.	31	Right external iliac	Died	4th day	Gangrene of leg
6	Peace	M.	36	Right external iliac	Cured		
7	Hey	M.	41	Left external iliac	Cured		
8	Garviso	...	...	External iliac	Cured		
9	Lyon	M.	53	Left external iliac	Died	50 hours	Exhaustion
10	Jones	M.	34	Right external iliac	Died	15th day	Erysipelas
11	Wedderburn	M.	25	Left fem., ext. iliac	Died	4th day	Gangrene
12	Van Buren	M.	46	Right external iliac	Died	4th day	Suppuration of sac
13	Stephen Smith	F.	33	Right external iliac	Died	48th day	Hemorrhage
14	Stone	M.	36	Left external iliac	Died	26th day	Dysentery
15	Goldsmith	M.	40	Left external iliac	Died	5th day	Exhaustion

Remarks on the second Group.—On examining this group it appears that fourteen of the subjects of the operation for aneurism were males, and but one a female; that the right external iliac artery was affected in eight cases, the left in six cases; one not given; that the mortality was $66\frac{2}{3}$ per cent.

Of the cases which are reported as having recovered we have the following subsequent notices: M. Salomon's patient died ten months after the operation, exhausted by the discharge from an abscess which formed upon the affected side, and was opened below Poupart's ligament. Dr. Peace's patient came under observation a second time, about fourteen months after the operation, having remained perfectly well up to within two weeks of the latter date, and able to pursue his business of loading boats with stones. He then first noticed a return of the tumour, which, on examination, was of the size of a small orange, soft, free from pulsation, presenting evident marks of fluctuation, the skin covering it being discoloured. A few days afterward an opening took place in it, and was followed by considerable hemorrhage, which was arrested by compression. Several recurrences of hemorrhage took place, and eleven days after this second observation he died.

Of the fatal cases the following explanation should be made: Crampton evidently attributed the failure of his operation to the employment of an animal ligature, which was of catgut, and "had been dissolved by the heat and moisture of the wound and thrown off before the obstruction of the artery or the coagulation of the blood in the aneurismal sac had been completed. It further appeared that the dissolution of the ligature had caused a small abscess to form in the place which it occupied." In Mr. Syme's case gangrene of the limb had already become apparent before the operation

was performed. Dr. Stone's patient was in a fair way to recover when attacked with dysentery, from which he sunk exhausted.

A just appreciation of the results in these fifteen cases would give the following conclusions: recoveries, five; permanently cured, one (Mott); temporarily, two (Salomon, Peace); unknown, two (Hey, Garviso); died, ten; fault of ligature, one (Crampton); condition of patient most unfavourable at time of operation, two (Syme, Van Buren); intercurrent disease unconnected with operation, one (Stone); connected with operation, three (Stevens, Jones, Wedderburn); local disease due to operation, one (Stephen Smith); cause of sinking and death uncertain, one (Goldsmith); attributed to operation, one (Lyon).

The results of the operation of deligation of the common iliac artery for aneurism, as compared with the same operation upon the external iliac, is worthy of notice. In ninety-five cases, which I have examined, of ligation of the latter artery for aneurism, sixty-nine recovered and twenty-six died, being a mortality of about 27 per cent., or less than half the mortality of the same operation for the same disease when performed upon the common trunk. The cause of death in eleven cases, or nearly one-half, of ligation of the external iliac for aneurism was mortification of the limb, presenting a striking contrast with the same operation upon the primitive iliac, in which there was but one instance in eight cases.

Group III.—*Summary of Four Cases of Deligation of the Common Iliac Artery for Malignant Tumours simulating Aneurisms.*

No.	Operator.	Sex.	Age	Seat of disease.	Result.	Date of death.	Cause of death.
1	Guthrie	F.	...	Right hip	Cured		
2	Stanley	M.	42	Left os ilii	Died	3d day	Peritonitis
3	Moore	M.	52	Left iliac region	Died	Few days	
4	Meier	M.	59	Right os ilii	Died	12th day	Gangrene of limb

Remarks on the third Group.—In this group of cases the operation was undertaken in ignorance of the true nature of the disease, although this was suspected in at least three cases, and a differential diagnosis was attempted. In Mr. Guthrie's case there was at first a difference of opinion among the surgeons who examined the tumour. Mr. Guthrie was doubtful on his first examination, but finally decided that it was an aneurism; Sir Astley Cooper and Mr. Thomas had no doubt of its being an aneurism, and Mr. Keate at first regarded it as a malignant tumour, but subsequently concurred in the opinion of his associates. In Mr. Stanley's case there was a preponderance of opinion in favour of the aneurismal character of the tumour. I can only learn of Mr. Moore's case that the disease was considered an aneurism of the external iliac. In Meier's case the question was decided, after a careful review of the various evidences, in favour of an aneurism.

The determination of the exact nature of pulsating tumours, which often

strikingly simulate aneurisms in the prominent signs, as developed by a physical exploration, and yet may differ essentially, is of great importance to the surgeon. Without entering into the question of diagnosis, it may not be irrelevant to call attention to the marked resemblance of some of the main features of cases two and four in this group, and the absolute differences between these cases and those of any form of aneurism which the entire collection presents.

GROUP IV.—*Two Cases not classified.*

No.	Operator.	Sex.	Age.	Disease.	Artery ligated.	Result.	Date of death.	Cause of death.
1	Bushe	F.	6 w.	Aneurism by anastomosis	Left com. iliac	Died	37th day	Abscess of knee
2	Chassaignac	M.	49 y.	To prevent hemorrhage	Right com. iliac	Died	4 h'rs	Exhaustion

Remarks on the fourth Group.—The cases in this group are of great interest, chiefly on account of the diseases or indications which led to the operation. In Bushe's case the disease was of a most formidable character, and the reasons which led this skilful surgeon to undertake its cure by so grave an operation were well conceived, as the result proved. Although this case is classified among those reported as unsuccessful, yet it does not properly belong to that list, for the patient had nearly recovered, not only from the operation, but also from the original disease itself, when she was attacked with erysipelas, to the remote effects of which she eventually succumbed. This case is also deserving of special mention, from the age of the infant patient, which was but six weeks old, being the youngest in the collection.

The second case in this group is one of the most remarkable in the whole series, when considered with reference to the object of the operation. We cannot present a better comment upon the several points of interest which are suggested by its perusal, than will be found in the following abstract of the remarks elicited from the members of the Société de Chirurgie, upon the narration of the case by the distinguished operator.

M. Larrey blamed the operator for attempting so considerable an operation without previous consultation with his colleagues. He deemed the attempted removal of the tumour itself of questionable propriety, inasmuch as it was proved to the satisfaction of the surgeon to be encephaloid in its character, and hence, aside from the difficulties of its entire extirpation, it was not only liable to prove fatal, either by hemorrhage, extension of the disease, suppuration, resorption, gangrene, cancerous infection, but by nervous exhaustion, as the result proved, the patient having died during the following night.

M. Chassaignac replied that while his conduct might be censurable; in the light of science and humanity the operation was justifiable. The patient was young and apparently healthy, and the disease, as proved by explorations, was of a rapidly fatal character. At first he proposed ligation of

the femoral, but the fear of hemorrhage induced him to prefer ligation of the primitive iliac, especially as this latter operation has proved successful in two of six cases. It answered the end proposed in this case by preventing hemorrhage. He did not think the seat of the tumour contra-indicated the operation, nor could the fatal issue of the case have been foretold if we reflect that patients survive the ligature of both carotids.

M. Robert agreed with Larrey as to the impropriety of attempting the removal of a tumour in the situation of this—encephaloid in its character, and probably extending into the pelvic cavity. A fatal termination was to have been expected from this operation; but Chassaignac still further compromised the life of his patient, by superadding another grave operation; while he acknowledged the courage of his colleague, he could but recognize the fact that he had overstepped the limits of his art.

M. Chassaignac denied the possibility of confounding the tumour with an osteo-sarcoma, for the most minute examination had been made in regard to this point. He was satisfied from his examination that if the tumour did penetrate into the pelvis, it was but slight. Though he did not approve the practice of removing tumours attached to bone, still such attachment was not an absolute contra-indication. The vascularity of the tumour, and the absence of hemorrhage during the operation, prove the advantage of the preventive ligature.

M. Gosselin did not consider tumours, situated as in this case, beyond the reach of art. His objection to the procedure lay against the preventive ligature applied to the primitive iliac. These ligatures are generally considered hurtful, and I do not approve them, except the vessels which may be involved are situated deeply and beyond the reach of the surgeon; but in this case the vessels involved in the operation were under the control of the surgeon; nor has he anything to fear from hemorrhage in the removal of tumours of this kind, for the vessels approach from certain fixed points and can be readily ligated. Strictly speaking, I approve then a provisional ligature only when it is not in itself dangerous; otherwise, does it not expose the patient not only to all the chances of a grave operation to prevent a primary hemorrhage, but also to the consequences of a secondary hemorrhage?

M. Chassaignac replied that the objections of M. Gosselin were considered before the operation, and still he concluded to ligate the common iliac artery. The tumour, so vascular, might receive vessels in its entire circumference, and especially might not be encysted. It was also deeply situated, its extirpation difficult, its degree of penetration into the pelvic cavity undetermined, a strong probability that the tumour was nourished by numerous inaccessible branches of the internal iliac, for these reasons he preferred ligation of the primitive iliac before attempting the removal of the tumour.

M. Maisonneuve did not regard this operation in the same light as his colleagues. The surgeon ought to regard only the interests of his patient. If the victim of a quickly fatal disease, the surgeon ought not to refuse the resources of the art, however slight they may be. Chassaignac's patient was young and vigorous, and his disease fatal. He gave him the chance of help in his power, and he did well. Doubtless he was upon the limits of the art, of the possible; but the operation itself proves that he did not overpass those limits. It was completed without involving any important organ. It terminated unfortunately; but how often does disarticulation of the femur have a fatal termination, and yet the surgeon does not recoil from

this operation. As to ligature of the primitive iliac, he shared the views of M. Gosselin; but to decide definitely upon this point, it would have been necessary to see the patient.

M. Huguier regretted that M. Chassaignac had not given the presumed causes of death. It could be referred in this case to several causes; but it was important to know if the action of chloroform, which was long-continued, could not be assigned. The same may be alleged of the exhaustion of the nervous system. Ligation of the primitive iliac, by instantly suspending the circulation of that limb, might have caused consecutively pulmonary, cerebral, or cardiac congestions.

M. Chassaignac stated that the operation lasted half an hour, during which time the patient was under the influence of chloroform, and he was disposed to think that the action of this agent had something to do with his death; still he did not desire to evade the full responsibility of the operation, by assigning this as a cause of death.

M. Forget opposed the views of M. Maisonneuve, contending that the judicious surgeon would not compromise his art by exercising it in a case so hopeless. The principles of surgery are not of unlimited application, and it is necessary to guard against their abuse. The limits of the tumour being unknown, the propriety of the operation became questionable. Maisonneuve quotes the case of disarticulation of the thigh by Sanson, and though it proved fatal a few minutes after the operation, alleges that the procedure is still considered justifiable; but the case proves the very opposite of the doctrine supported by Maisonneuve, for here we have superadded to an operation more severe than Sanson's, an operation of the greatest gravity.

General Considerations.—A review of the preceding tables gives the following facts and conclusions:—

Sex.—Of thirty-two cases of ligation of the primitive iliac artery, twenty-seven occurred in males, three in females, two sex not given. The great preponderance of males over females is undoubtedly owing to the greater exposure of the former to the exciting causes of aneurism, as well as to local injuries.

Age.—The ages of the patients are seen to vary from six weeks (Bushe) to fifty-nine years (Meier), as follows:—

Under 1 year . . .	1	Between 30 and 40 . .	10
Between 1 and 10 . .	1	" 40 " 50 . .	6
" 20 " 30 . .	6	" 50 " 60 . .	3

Disease.—In twenty-four cases, aneurism directly or indirectly led to the operation. These tumours involved the following arteries: right external iliac, eleven; left external iliac, seven; femoral, one; gluteal, two; varicose, one; not given, two. In four cases the tumour was malignant, though simulating aneurism. The liability of the right external iliac artery to aneurism, as here shown, is very much greater than the left. In the cases of malignant disease it will be seen that the right and left side were the seat of disease in the same number of cases.

Artery ligated.—In seventeen cases the right primitive iliac was ligated, and of these three were successful; in thirteen the left primitive was ligated, of which one recovered.

Mortality.—Of thirty-two cases, twenty-five died, and seven recovered, being a mortality of about 78½ per cent.; the mortality after ligation of the external iliac is about 28 per cent.

The success of this operation is evidently greatly overrated by our best authorities. Erichsen remarks, "When we look at the depth at which this artery is situated, its great size, and proximity to the centre of the circulation, and consider the force with which the blood rushes through it, we cannot but be struck with the success which has attended its ligature. Of seventeen cases in which it has been tried, nine were cured and eight died." From what source he obtained his statistics I do not know; if correct, he has had access to cases which I have failed to reach. Prof. Gross takes a still more favourable view of this operation. He says (*System of Surgery*, vol. i. p. 940), "The artery has since been secured in about twenty cases, of which nearly two-thirds have terminated successfully."

The statistics of this operation, which are herein embraced, give very different conclusions, and will serve to place it among the most unsuccessful procedures in operative surgery.

It is worthy of note that, according to these statistics, since the year 1845, the date of Mr. Stanley's operation, no successful case of ligation of the primitive iliac has been reported, though during that period of fifteen years the operation has been performed no less than fifteen times. It will be remembered that this period embraces the entire history of anæsthesia, and it is important to inquire as to the influence of these agents in producing this excessive mortality.

Nine Cases of Ligation of the Common Iliac Artery in which Anæsthetics were administered during the Operation.

No.	Operator.	Injury or disease.	Date of death.	Cause of death
1	Chassaignac	Removal of tumour	16 hours	Shock of operation
2	Jones	Aneurism	15th day	Erysipelas
3	Uhde	Aneurism	4th day	
4	Van Buren	Aneurism	4th day	Suppuration of sac
5	Edwards	Hemorrhage	25th day	Hemorrhage
6	Meier	Malignant disease	12th day	Gangrene of leg
7	Buck	Hemorrhage	17th day	Hemorrhage
8	Stephen Smith	Aneurism	48th day	Hemorrhage
9	Parker	Hemorrhage	10 hours	Exhaustion

The case of M. Chassaignac is the only one in this table which would seem to warrant the supposition that the anæsthetic agent determined the fatal result. But the operation itself was in this case of sufficient severity to have led to a fatal issue, independently of any other agency; and although the chloroform, so long continued, doubtless added to the prostration of the patient, there is no evidence that of itself it was the producing cause of death. Neither the operator, or the members of the society before whom he narrated the case, with one exception, seem to have attributed to the

anæsthetic the unfavourable issue which followed. To show further how little probability there is that the excessive mortality attending this operation during the last fifteen years is due to the use of anæsthetic agents, we may compare with the cases just adduced, in which chloroform was used, the nine fatal cases which occurred previously to the date at which these agents were employed. It will be seen also that the diseases or accidents for which the operation was undertaken were the same for each period, making the comparison still more accurate.

Nine Cases of Deligation of the Primitive Iliac Artery in which Anæsthetics were not used.

No.	Operator.	Disease.	Date of death.	Cause of death.
1	Gibson	Hemorrhage	13th day	Hemorrhage
2	Crampton	Aneurism	10th day	Hemorrhage
3	Liston	Hemorrhage	24 hours	Exhaustion
4	Garviso	Aneurism	4 hours	
5	Syme	Aneurism	4th day	Gangrene of leg
6	Bushe	Aneurism	37th day	Abscess of knee
7	Post	Hemorrhage	24 hours	Exhaustion
8	Pirogoff	Hemorrhage	14th day	Hemorrhage
9	Stanley	Malignant disease	3d day	Exhaustion

The extreme dates of death after the operation in the first table are sixteen hours and forty-eight days, the average period of death was fourteen and a half days. The extreme dates of death in the second table were four hours and thirty-seven days, the average being about nine days. It would appear, therefore, that those patients who were operated upon while under the influence of an anæsthetic lived longer, and consequently were less affected by the operation itself, than those who were not thus treated.

The Material of the Ligature.—In all the cases except two, as far as we can ascertain, the common silk ligature was employed. These exceptional cases deserve a passing notice.

Crampton employed a ligature made of catgut, which escaped from the artery on the eighth day, and on the tenth his patient died suddenly from hemorrhage. On dissection the important fact seems to have been clearly established, that the ligature "had been dissolved by the heat and moisture of the wound, and thrown off before the obstruction of the artery, or the coagulation of the blood in the aneurismal sac, had been completed. It further appeared that the dissolution of the ligature had caused a small abscess to form in the place which it occupied." At the period of Crampton's operation the catgut ligature, first recommended by Mr. Young in 1813, was frequently employed, and with very satisfactory results. It was preferred on account of its unirritating properties, and its capacity for dissolution after it has subserved the purposes for which it was applied to the artery. Prof. Porta, who experimented largely with catgut ligatures, found that soon after this ligature was applied to the artery it became surrounded

with plastic lymph, which, becoming organized, formed either a cellular web, or a ligamentous substance, or suppurative inflammation was established, resulting in a circumscribed abscess. The latter occurred in only twenty-six of two hundred and thirty-six experiments. It occurred also in Crampton's case, and proved fatal. It is stated that the ligature dissolved and separated on the eighth day in Crampton's case. Prof. Porta applied the catgut ligature eighty times, and in thirty-three instances it disappeared, the earliest date of its disappearance being thirty days, the latest three years. It would seem, therefore, that the unfortunate result in Crampton's case was quite exceptional, both in the formation of an abscess and the early destruction of the ligature.

Stone employed silver wire as a ligature to arteries for the first time. In its application he did not tighten it sufficiently to lacerate the coats of the artery, but merely to interrupt the current of blood. The operator selected the silver wire under the impression that for the cure of aneurism it is only required to arrest the current of blood, and that for the obliteration of arteries it is not necessary to cause a division of their coats. The silver wire, therefore, tightly applied will not cause ulceration, and hence answers perfectly the design of the operator, by arresting the current of blood and producing a gradual obliteration of the artery. The death of the patient, and the failure to obtain a post-mortem examination, have left these most important questions undecided; but it can scarcely be doubted that the silver wire will prove the most reliable form of ligature, especially upon larger arteries, in which it is most important that the several coats should preserve their integrity much longer than is ordinarily the case with the silk ligature tightly drawn, in order that no lesion shall occur until the process of obliteration is so far completed as to resist the arterial propulsion. This view is sustained by reference to the date of the separation of the ligature, where it will be seen that in the majority of cases of secondary hemorrhage, after ligation of the primitive iliac artery, the ligature separated much earlier than in the cases of recovery.

Separation of the Ligature.—The date of the separation of the ligature is given in twelve cases, as follows:—

No.	Operator.	Date of separation.	Result.	Cause of death.
1	Mott	18th day	Recovered	
2	Crampton	8th day	Died	Hemorrhage
3	Guthrie	20th day	Recovered	
4	Salomon	32d day	Recovered	
5	Bushe	13th day	Died	Abscess of knee
6	Deguise	16th day	Recovered	
7	Peace	32d day	Recovered	
8	Hey	28th day	Recovered	
9	Garviso	36th day	Recovered	
10	Edwards	16th day	Died	Hemorrhage
11	Buck	13th day	Died	Hemorrhage
12	Stephen Smith	36th day	Died	Hemorrhage

The longest period of retention of the ligature was thirty-six days, and the shortest eight days; the average being nearly 23 days. An examination of fifty cases of deligation of the external iliac artery gives an average of twenty-two days for separation of the ligature. An important distinction may be made between the successful and unsuccessful cases, in regard to the period of the separation of the ligature. It will be noticed that in the successful cases the ligature was retained much longer than in the fatal cases. For the former class the average period of retention of the ligature is twenty-four days, while for the latter it is but about seventeen days, thus leading to the important inference that the early separation of the ligature is an indication of danger from hemorrhage.

Nine Cases in which the Peritoneum was wounded during the Operation.

No.	Operator.	Peritoneum.	Result.	Cause of death.
1	Gibson	Freely opened	Died	Hemorrhage; peritonitis
2	Guthrie	Wounded twice	Cured	
3	Stevens	Freely opened	Died	
4	Garviso	Freely opened	Died	Exhaustion
5	Pirogoff	Wounded twice	Died	Hemorrhage; peritonitis
6	Post	Freely opened	Died	Exhaustion
7	Buck	Wounded twice	Died	Hemorrhage
8	Stone	Lacerated	Died	Dysentery
9	Goldsmith	Freely opened	Died	Exhaustion

Of these nine cases in which the peritoneum was wounded, but one recovered. In four the wounds were slight (Guthrie, Pirogoff, Buck, Stone), of which one recovered. Of the remaining three, one had the local appearances of peritonitis (Pirogoff), the others had none (Buck, Stone). Of the five cases in which the peritoneum was freely opened, three died within twenty-four hours (Garviso, Post); one lived two days, and had local peritonitis (Stevens); one lived five days, no peritonitis (Goldsmith); one lived thirteen days, having severe peritonitis (Gibson).

It does not, however, appear certain that in any case a wound of the peritoneum has caused the fatal result, although it cannot be doubted that it is a serious complication, and one that should be carefully avoided. In the four cases in which it was freely opened the operation was performed without any special effort to guard this membrane. In the remaining cases the wound was accidental, and every precaution was taken to prevent its occurrence.

The Operation.—It will be seen by reference to the operative procedure in the several cases reported that two principal methods have, with various modifications, been adopted, viz., 1st, deligation of the artery external to the peritoneum; 2d, through the peritoneum, or, as Malgaigne has well entitled these methods, *incision extra-peritonéale* and *incision peritonéale.* To accomplish the first operation two methods have been pursued, the first being a modification of Abernethy's operation in ligation of the external

iliac artery, viz., an incision in the course of the artery; and the second being a modification of Cooper's operation upon the same artery, viz., a curved incision above and parallel with Poupart's ligament. The former method has been adopted only in cases which did not seem to the operator to admit of the other procedure (Gibson, Garviso, Post, Buck).

The second method has been variously modified by the different surgeons who have practised it. It has been described by Vidal under two divisions: 1st, incision parallel with Poupart's ligament; 2d, incision parallel with the linea semilunaris. Linhart gives the following incisions as types of the different methods: 1st, a curved incision from the anterior end of the last rib to the anterior superior spinous process (Crampton); 2d, incision parallel with the linea semilunaris; 3d, incision from a little above the anterior superior spine in the direction of the umbilicus, but extending only to the sheath of the rectus (Dumreicher). A better subdivision, however, of this operation would be into the *high* and *low* incision, a line drawn from the anterior superior spinous process to the umbilicus, being the line of division accordingly as the incision extends above or below this point.

Mott was the first to perform the low operation, and still advocates his original operation. He commenced his incision just above the external abdominal ring, half an inch above Poupart's ligament, and terminated it a little beyond the anterior superior spine of the ilium, the extent of the incision being five inches. The peritoneum was raised by entering the external ring. The difficulties which he encountered were, first, division of the circumflex iliac artery; second, inability to reach the primitive iliac without enlarging the wound upward to the extent of three inches.

Crampton was the next operator, and first performed the high operation, in the following manner: The incision began at the extremity of the last false rib, and terminated at the anterior superior spine of the os ilium, having a curvilinear direction, and being nearly in a line with the crista ilii. The operation is described as "an exceedingly easy operation," and was completed in twenty minutes, without any complication whatever.

The modifications of these two very different incisions are numerous, and, with three or four exceptions, unimportant. These exceptional cases are as follows:—

Guthrie says, "I may state that if the incision is made in the side, from the ribs to the ilium, in a straight line, the greatest possible difficulty is experienced in turning over the peritoneum, so as to place your finger upon the last vertebra: but if a diagonal inclination be given towards the rectus muscle, not opening its sheath so as to expose it, but carrying the incision fully up to that part, then there is room to turn over the peritoneum, with its contents, so as to get at the artery."

Dumreicher made an incision from just above the anterior superior spine upwards and inwards towards the umbilicus nearly to the sheath of the rectus muscle, and Linhart speaks of this method as preferable to all others.

Salomon, believing that Crampton's operation rendered the exposure of the artery difficult, and the detachment of peritoneum unnecessarily extensive, made his incision parallel to the internal epigastric artery, commencing an inch within the anterior superior spinous process, and terminating within an inch of the last false rib.

Hey modified the high operation by making "an angular continuation an inch and a half in length" outwards; but his description is so indefinite as to leave us in doubt as to the value of this extension of the first incision.

Before proceeding to the operation which it fell to me to perform, I put these various methods to the test upon the cadaver, and after repeated trials came to the conclusion that the following incision gave the most direct and easy access to the artery: Commence the incision just anterior to the extremity of the second false rib (eleventh) and terminate it just above the internal ring by a sharp curve inward of one inch; this incision will be about seven inches in length, and will pass about an inch and a half within the anterior superior spinous process; the curve at the lower extremity will allow the most perfect freedom in the elevation of the peritoneum, and the complete exposure of the artery.

The second method by incision of the peritoneum was first practised by Gibson, and subsequently by Garviso, Post, and Goldsmith. It is needless to comment upon the propriety of this procedure in ordinary cases.

The following caution, given by Guthrie, in regard to raising the peritoneum, is worthy of attention: "There is a point here of great importance to recollect, and it is, that the peritoneum must be raised over without the hand being pushed back towards the posterior wall of the abdomen but as little as can be avoided; for there is some fat usually at that part, if there be any to be found in the body, and behind which you are very apt to get in performing the operation instead of going in the front; and if you do, it leads to the under edge of the psoas muscle instead of the upper, and renders the operation much more difficult."

ART. II.—*Carcinoma of Uterus: Extirpation.*

By A. F. SAWYER, M. D., San Francisco.

MRS. S., aged forty-three years, arrived here from New Orleans, in 1852. She was rather spare in habit, yet with a fair muscular development, and of a nervous, sanguine temperament. She was married in her seventeenth year, and previous to her coming to California had borne four children. There had always been long intervals between her conceptions. She has never miscarried.

The tumour was first noticed in her abdomen, in January, 1849, when she was recovering from her fourth confinement, after the birth of a healthy and mature child.

My attention was called to her case in the early part of 1855, at which time there was found a well-defined tumour, of about the size of the two fists, similar in form to the uterus, occupying the median line of the abdomen, and when she was in an upright position sinking low down into the cavity of the pelvis. The form and location of the tumour, together with the general indications of the case arrived at from an examination of the rectum and vagina, especially the existence of *ballottement*, led to the conclusion that it was connected with the uterus, probably of a fibrous nature, and developed at the expense of the uterine cavity; for, otherwise, in the enlarged condition of the uterus its symmetrical shape could not be accounted for.

Her catamenia had never been regular since her last confinement; sometimes scanty, sometimes very profuse, occurring at indefinite intervals of from three to six weeks, and accompanied with strong bearing-down pains. At other times she suffered but little inconvenience, excepting what resulted mechanically from the position and weight of the tumour.

On the 12th of October, 1856, she was delivered of a healthy child at full term. During the early period of gestation it was uncertain whether the growth of the uterus came from pregnancy, or was to be attributed to an increased activity in the development of the tumour itself. Toward the close of gestation the placental murmur and the sound of the fœtal heart made her pregnancy certain. Without these signs, as the movements of the fœtus were never distinct, and as there was a repeated recurrence of a sanguineous discharge from the vagina, the diagnosis would have been materially obscured. As pregnancy advanced, however, a double tumour could be felt within the abdomen, and plainly observed by the eye after the abdominal walls became distended over the gradually enlarging uterus—the womb occupying the left side and crowding the tumour to the upper and right side of the abdominal cavity; also, the condition of pregnancy seemed to stimulate the growth of the tumour, as at the end of gestation it had become at least one-half as large again as when first examined.

Her labour went on naturally and without accident, and she made a prompt recovery. After labour the uterus could no longer be felt, and the tumour resumed its former position in the pelvic cavity.

With this enlarged history of the case we were compelled to abandon the idea that the tumour was uterine, and were rather disposed to consider it as ovarian disease. For it was not within the limits of reasonable probability that the uterus, granting it to have been thus extensively involved in structural disease, could have sustained the nutrition of a fœtus up to its full term, even if conception were possible.

There was no indication of attachment, for the tumour could be easily

elevated, and moved to and fro in the pelvic cavity. There was no marked tenderness on pressure. It had a regular smooth outline without nodosities, and the sensation to the hand was that decidedly of a solid growth. This, with the absence of elasticity or fluctuation, seemed to indicate that it was not encysted disease.

From her last confinement up to the date of the operation, June 8, 1859, the tumour gained rapidly in size, producing almost insupportable sensations of a dragging weight, with now and then acute lancinating pains referred to the tumour, and extending down into the privates and thighs, and the patient was rapidly failing in physical vigour and strength. Her sufferings finally increased to such an extent that, notwithstanding a full explanation of the dangers attending operations of this character and magnitude, she became resolutely determined to undergo every hazard to accomplish its removal.

The patient being placed under the influence of sulphuric ether, an incision was made into the peritoneal cavity, extending from a little above the umbilicus to the pubis, in the direction of the linea alba. The true nature of the disease was then apparent, it being a large solid growth, without adhesions, embedded in the parietes, and resembling an enormous hypertrophy of the uterus. The ovaries rested on either margin of the tumour, the left natural in appearance, and the right considerably atrophied. A large curved needle, armed with a strong ligature, was then passed through the textures below the cervix uteri, the ligatures made secure, and the tumour amputated above the ligatures. The free ends of the ligature were then brought out of the abdominal wound, which was immediately closed by sutures and adhesive plaster.

Description of the Tumour.—The tumour had an exact resemblance to the uterus in form, measuring $9\frac{1}{2}$ inches in its long and $7\frac{1}{2}$ inches in its short diameter, and about 5 inches through from side to side. Its surface was perfectly smooth, and covered with peritoneal membrane; a large number of dilated bloodvessels ramified over the exterior of the tumour, becoming finally concentrated into the vessels of the broad ligaments. The mass removed weighed $7\frac{1}{4}$ pounds.

A section of the tumour showed that it had its origin at the fundus of the uterus. At least the greatest bulk of the tumour was found at the fundus, thence extending downward over the anterior face and right margin of this organ. The posterior walls and left border were but little encroached upon by the disease; the muscular coat being of the natural thickness.

From without inwards the following textures were noted. 1st. Peritoneum. 2d. The uterine parietes, about two lines in thickness. Then a cyst wall of cartilaginous structure, crowded with well-defined plates of amorphous calcareous deposit, inclosing the softer parts of the tumour, which last had a partially lobulated appearance, the lobules possessing different characteristics. Some being of a grayish colour, with but little

consistency, resembling cerebriform fungus; others much firmer in structure, of reddish appearance, with bands of white cartilaginous fibre traversing them in different directions. Quite large calcareous particles were distributed through the denser portion of the tumour. Indeed, a section of any portion of the tumour gave a gritty feel to the knife. Lastly, the true muscular texture of the uterus, about three lines in thickness, with the mucous membrane of the uterine cavity, which presented small patches of ecchymosis on its inner surface.

From this description it will be seen that the tumour rested within the muscular parietes of the uterus. Splitting then, as it were, in its development, the outer muscular layers forming its external covering, and the inner layers preventing the encroachment of the tumour upon the uterine cavity. The os and canal of the cervix were pervious, as also the left Fallopian tube. The right was pervious only about three lines from the uterine orifice.

The patient progressed well up to the fourth day after the operation. There was but little distension of the abdomen, and not marked tenderness; not much thirst; the pulse varying from 80 to 90. The bladder was kept empty by the catheter. On the third day a trifling discharge of healthy pus was noticed from the vagina. Small doses of calomel and opium were prescribed as a prophylactic, and to quiet the nervous system.

On the evening of the fourth day strong rigors supervened, and the patient's condition changed rapidly for the worse, the stomach rejecting everything presented to it, whether of a liquid or solid form. The lower portion of the abdomen became swollen and tender, which soon extended itself over the entire peritoneal cavity. The pulse rose to 140, and the countenance of the patient assumed an anxious and distressed look. The healthy suppuration from the vagina gave way to an excessively fetid and sanious discharge. These symptoms became steadily more aggravated until her death, which occurred on the sixth day after the operation.

In the way of treatment external irritants, as turpentine and emollient fomentations, were applied over the abdomen, without effect. Internal remedies were rejected as soon as presented. Inhalations of sulphuric ether afforded some relief to the distress of the patient. Her most painful sensation was a tenesmus, and uncontrollable bearing down of the rectum. A long flexible catheter was introduced into the gut without benefit. Mucilaginous injections, combined with morphia and lac assafœtida, gave some palliation to these symptoms.

Post-mortem examination six hours after death.—The wound of the abdomen had united in its whole extent, excepting at the point which had afforded escape for the ligature. There was considerable but not extraordinary inflation of the peritoneal cavity. The whole intestinal track, including the stomach, had a congested and inflamed appearance. Several small particles of ecchymosis were observed near the pyloric orifice of the stomach. The mucous coat of the rectum was deeply engorged and somewhat softened. About ℥x of a dark sanguineous fluid, mixed with clots,

occupied the dependent portion of the peritoneal cavity. Bladder contracted, without urine. Vagina softened and sloughy. On examining the stump of the wound the ligatures were found partially loosened from their attachments by ulceration, and its free end covered by a small, half decomposed clot, which, when removed, showed the patent mouths of bloodvessels.

There is little doubt that the remote cause of death was from secondary hemorrhage, which probably set in on the fourth day after the operation. The compression on the vessels becoming relaxed by the partial separation of the ligatures, before the plastic powers of nature had closed the arteries firmly enough to withstand the ordinary force of the circulation. The proximate cause of death was connected with the decomposition of the clot within the cavity of the peritoneum, and which led to the train of symptoms that afterward supervened, and could not be controlled.

This case presents several points of marked interest. It will be observed that our original diagnosis, and as afterward proved to be the correct interpretation, was that the tumour involved structurally the uterus itself. It is to be recollected that the patient was under observation for nearly a year before her last pregnancy occurred; and during this time, when we had every satisfactory evidence that the tumour was not attributable to pregnancy, the existence of ballottement seemed to establish our opinion conclusively. The sensation of ballottement indicates a weighty uterus, without determining the cause which has led to its increased weight. This must be settled by the collateral history of the case; and when the circumstances are such as to preclude the probability of pregnancy, it becomes a very important diagnostic sign for predicating the existence of uterine tumour. If the cavity of the uterus admits of examination by the uterine sound, of course the character of the tumour is more plainly fixed, as in eliminating the presence of polypoid growths, or of fluid within the uterine cavity, which may lead to such a distension of that organ as to give fully the sensation of ballottement. A case of the latter description has fallen under our observation, and the simple introduction of a fine pointed gum-elastic bougie sufficed for the cure of the case, by affording evacuation to a considerable quantity of a fetid serous fluid.

In this instance, although the uterine canal was pervious to the sound, it was wrongly supposed that the cavity of the uterus had become dilated by the gradual increase of the tumour, as may occur from unnatural as well as from natural causes.

Not the least remarkable feature in her case was that she had been able to carry her fœtus to the full term, when such a large and unyielding morbid mass had been located within the muscular parietes of the womb. In short, we were unwilling to admit the presumption of pregnancy, until all doubt was removed by the sound of the fœtal heart. When the abdomen became fully distended, as gestation advanced, the tumour appeared to the eye, and, indeed, as could be easily felt by the hand, entirely distinct from the gravid womb, so that we were forced to the conclusion that the tumour

was disconnected with the body of the uterus, and that the ballottement at first noted arose from the close anatomical relations of the tumour to the uterus, probably resting in juxtaposition with it, so as to readily convey by transmission the sense of ballottement to the touch.

There are abundant cases recorded, where it is demonstrated that the form and anatomical location of the tumour do not always conclusively indicate either the nature of the disease, or in what organs it may have specially originated. Ovarian tumours have not unfrequently simulated uterine tumours, and *vice versâ*. We have known cancerous degeneration of the kidney mistaken for ovarian disease, and yet scarcely a doubt could exist that it was not ovarian prior to the operation. A successful case occurred here in the hands of an old and experienced surgeon, who made abdominal section for ovarian disease. The tumour was found, however, to be a large fibrous tumour of the uterus, weighing several pounds, which was separated from its pedicle. The patient made a complete recovery from the operation.

In the present instance it is worth remarking that the functional power of the uterus was curiously sustained, where the patient was able to bear a mature child, notwithstanding the existence of an immense foreign growth, imbedded, as it were, in the muscular parietes of the womb. In this connection we would call attention to the healthy appearance of the left ovary, as contrasted with the shrunken and atrophied condition of the right, associated with the complete obliteration of the corresponding Fallopian tube.

We append the following list of cases of abdominal section, with results —a total of eleven cases, which probably includes all the operations of this character made in California :—

Seven cases of ovarian disease, of which six terminated fatally. In three of the seven cases the wound was closed without attempt at removal of the tumour, on account of unusual complications. In one case the contents of the cyst were purulent. In the seventh case (Dr. Nelson's) the patient made a perfect recovery, although the case appeared unfavourable, from extensive adhesions. One case of Cesarean operation (Dr. Cooper) successful. One case of fibrous tumour of uterus (Dr. Nelson) successful. One case of carcinoma of uterus (the case here reported) fatal. One case of fungus hæmatodes of kidney, fatal.

These cases have generally been in the hands of fully competent and experienced surgeons; and the fatality, as far as ovarian disease is concerned (six out of seven cases), compares very unfavourably with the published statistical accounts of the success of this operation. A great deal has been said and written about the proper selection of cases for operative procedure. Experience, however, shows that the most skilful surgeons are likely to be in error in their selection of cases for operation, which beforehand, in a diagnostic point of view, may have afforded the most promising expectations of radical success. Besides, we have to consider, whatever

may have been the previous history of this class of cases, whether they have been under the treatment of empirics or the enlightened medical practitioner, when it comes to the question of an operation. Men of acknowledged ability and reputation in surgery are solicited to take charge of the patient; and do they always furnish a report of their unsuccessful cases as well as of their successful? For our own part we are satisfied that the statistics of ovariotomy are entirely unreliable, because but a feeble fraction of the fatal cases are given to the public; whilst there is not a single successful operation that does not find its way, either directly or indirectly, into some of the medical periodicals of the day.

ART. III.—*Two Cases of Reducible Inguinal Hernia operated on for the Radical Cure.* By R. A. KINLOCH, M. D., Surgeon of the Roper Hospital, Charleston, S. C. (With five wood-cuts.)

CASE I. Hamber, a native of Germany, æt. 32, basket-maker, was admitted into the Roper Hospital January 1, 1859, labouring under oblique inguinal hernia on the left side, occasioned by heavy lifting two months previously. Has a weakly appearance, with sallow complexion, and has long suffered from dyspepsia; but entered the hospital to be cured, if possible, of hernia. It was thought advisable first to improve his general health, and with this view he was treated with occasional mercurial laxatives, alkalies, and bitter tonics, together with generous diet and a liberal allowance of porter.

January 22. Patient's condition so much improved that he was considered ready for operation. Being recumbent, and fully chloroformed, the operation was practised as follows: "A portion of the scrotal integument was invaginated and pushed well up into the inguinal canal with the index finger of the left hand. A strong and slightly curved needle, fixed to a handle and armed with a double suture of annealed iron wire (No. 32) of proper length, was passed up the invaginated integument, along the finger as a guide, to the internal ring, and made to perforate all the abdominal structures in front of the inguinal canal. The wire was then liberated from the eye of the needle by an assistant, and the needle withdrawn. A second, third, fourth, fifth, and sixth puncture was then successively made in the same way as the first, and through each perforation was carried a double wire suture. These perforations were so placed that there were three to the left and three to the right, so that the upper extremities of the sutures passed through the antero-lateral walls of the inguinal canal; each suture was separated from its neighbour of the same side by the distance of a third of an inch, and from its neighbour of the opposite side by the distance of

half an inch or more. But one extremity of each of the double wire sutures, previous to the beginning of the operation, had been securely attached, by means of transfixion and knotting, to a plug of India-rubber, two inches long, and about the thickness and shape of the thumb—this form had been rudely given to the plug by trimming with the scissors. The index finger of the left hand was now withdrawn from the canal, and the plug of India-rubber was made to take its place, by carefully pulling the upper extremities of the six wire sutures, making greater traction upon one or the other suture from time to time, until the plug was snugly lodged in the inguinal canal. The operation was completed by twisting the sutures of either side separately over a small quill or strip of India-rubber, an inch and a half long. Thus, the India-rubber plug, and not the sutures alone, preserved the invagination of the scrotal integument, and kept it in contact with the contour of the canal. After the effects of the chloroform had passed off, patient was depressed and required a little stimulus. He was put to bed and ordered R.—Tinct. opii ʒj. Half to be taken at once, and the remainder at bedtime.

23*d*. Patient had suffered considerable pain for several hours after the operation, but had finally slept well at night. To day he makes no complaint. Pulse normal. R.—Tinct. opii ʒss three times a day. Diet, gruel, and bread and tea.

24*th*. Has had some pain about the part operated on; slight inflammatory blush now about the groin and upper part of scrotum; abdomen a little puffed; bowels constipated; pulse 100. R.—Pil. hydr. mass. gr. vj; pul. gum opii gr. iv in pil. No. 3. One to be taken three times to-day, and a dose of castor oil early to-morrow morning. Scrotum to be supported with a suspensory bandage.

25*th*. Oil had operated kindly; patient's general condition good; some serous infiltration of cellular tissue at upper part of scrotum. R.—Tinct. opii ʒss three times to-day; support scrotum as before.

26*th*. Some suppuration about the points of suture. Warm water-dressing to be applied to part. Opium treatment continued.

31*st*. Patient been doing well since last report. Apparatus removed by cutting sutures, and then carefully extracting the India-rubber plug with a forceps. The invaginated integument was found to be fixed; its epidermis had been removed by the contact with the foreign body, and suppuration was abundant. Parts were now properly cleansed, and a thick compress retained over the inguinal canal by a spica bandage; scrotum supported; liberal diet allowed.

February 15. Suppuration has ceased; there is some thickening of tissues about the canal; opposing surfaces of invaginated integuments firmly united; patient able to wear a truss quite comfortably.

March 7. Patient has been induced to remain in hospital up to this time that his condition might be watched. To-day he was discharged well, and directed to wear a truss for at least two months.

CASE II. T. M., a native of Charleston, æt. 20, overseer on a rice plantation, entered hospital March 16, 1859. Has a small oblique inguinal hernia of long standing on the right side, and a large hydrocele on the left. He wished to be cured, if possible, of both affections. Health otherwise good; bowels rather constipated. A blue pill and a dose of oil prepared him for operation.

March 18. Patient chloroformed and operated on for his hydrocele with the metallic seton, and afterwards for the radical cure of his hernia. The procedure in the operation for hernia was a modification of the one I have just detailed, and is the one I now prefer, after having successfully practised it in several cases. A canular needle (Fig. 1[1]), two strips of India-rubber

Fig. 1. Fig. 2. Fig. 3.

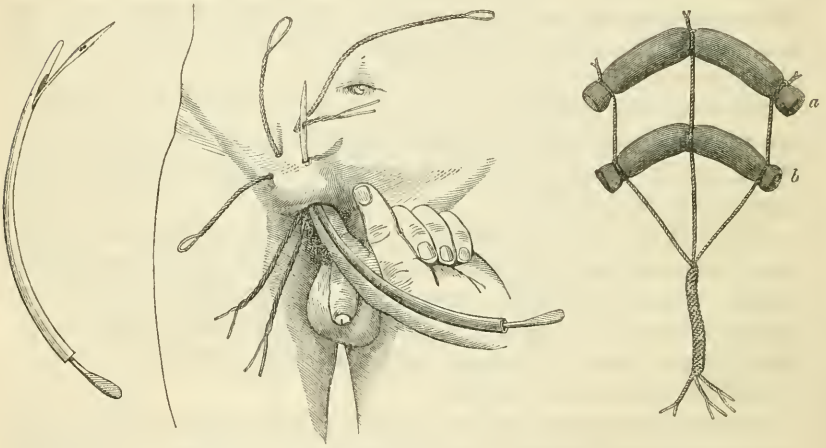

Fig 1. Canular needle.

Fig. 2. First stage of operation; the third and last wire about being passed by the needle.

Fig. 3. Represents the arrangement of the rubber straps and the wires after completion of the operation.

(see Fig. 3 *a b*), and sufficient annealed iron-wire for sutures, are the instruments. They were thus used: After invaginating the scrotal integument as usual, the canula was passed along the finger up to the internal ring, and the needle then thrust forward through all the tissues in front of the canal (see Fig. 2). The eye of the needle was next armed with a wire suture, and the needle retracted. The canula was again passed, and the needle thrust on as before, but its point was now made to appear externally a little lower and to the left of the first puncture; thus, a second double wire suture was fixed in position, and finally a third one was passed by a

[1] This is a rough instrument, and was made extemporaneously from a female catheter. The canula of an ordinary trocar can be used for guiding the needle, if no better instrument is at hand.

puncture practised in the same way, but lower and to the right of the first one. Each double suture was now fixed near its middle to one of the strips of India-rubber, by closely twisting the wires about the strip at three distinct points, as represented in Fig. 3 *b*. By traction upon the upper ends of the wires with one hand, while the strip of India-rubber was flexed and directed with the other (see Fig. 4), the strip was lodged in the canal, where it was to remain, forming an inverted semicircle. The upper extremities of the sutures that passed through the abdominal structures were now twisted over the other strip of India-rubber, which consequently represented externally a half circle, corresponding in length and direction with that formed by the strip within the canal (see Fig. 3 *a*). Lastly, the ends of the wires holding the external strip were cut off; but the lower wires that passed through the canal were gathered into a bundle, wrapped around with a strip of adhesive plaster, and left to rest upon the scrotum (see Fig. 5). Patient was put to bed and ordered tinct. opii gtt. xxv; the same

Fig. 4.

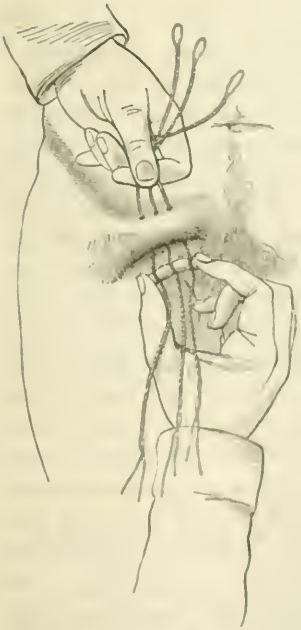

Fig. 5.

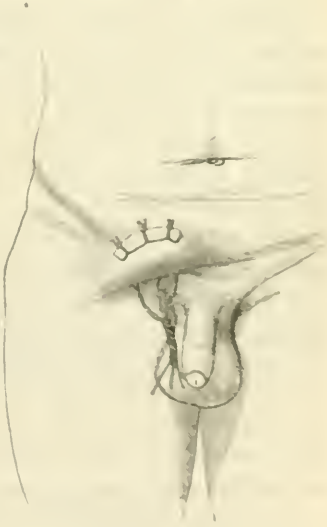

Fig. 4. Second stage of the operation; the India-rubber strip fixed to the wires and about being pulled into its position in the canal.

Fig. 5. Operation completed. The upper extremities of the wires have been twisted over the external piece of India rubber and cut off; the lower extremities of the wires have been fastened into a bundle and lie upon the scrotum.

dose to be repeated at bedtime. The opium treatment was continued for several days. Patient suffered scarcely at all from the operation.

26*th*. The apparatus was removed with great ease, by cutting the upper

wires in front and then carefully pulling upon the lower ends. Care was taken to draw first upon the suture attached to one of the extremities of the India-rubber strip, then upon the middle one, and finally upon the three together. By so proceeding all dragging upon the invaginated integument was avoided. The invaginated integument was found firmly adherent. The wires and India-rubber strip had developed free suppuration throughout the passage. Some superficial ulceration of the abdominal integument over the canal had also been produced by the pressure of the external strip of India-rubber. The parts were cleansed, and dressed with simple cerate and a compress and bandage; the scrotum was supported by a suspensory. In a few days' time adhesion was perfect throughout all the invaginated portion of integument, and scarcely a trace of the operation remained. Patient remained in the hospital until the 21st of April, in consequence of an attack of pneumonia, contracted after his recovery from the operation for hernia. There was no disposition to a recurrence of the hernia, and he was discharged with directions to wear a truss for at least two months.

Remarks.—I am not reporting the above cases with the view of advocating operations for the radical cure of reducible hernia. Although I believe that hernia has been cured by many of the procedures that are now employed, I think that all of these are uncertain, and practised with some risk. I consent to operate only on select cases, and when the patient specially desires it. I claim no particular originality or superiority in regard to the methods that I have detailed above; but I believe they possess the merit of simplicity, and will succeed as well as the operations practised with complicated instruments. Within a few years there has been a general revival of the attempts to cure reducible hernia, occasioned mainly, perhaps, by the introduction of the instruments of Wütz er and Rothmund, with their boasted claims to success. In the face of the reported success, I cannot forget that the spermatic cord has to pass through the inguinal canal, and that art can never more than approximate that beautiful and perfect natural arrangement, whereby the canal is closed to everything but the cord, and yet this not even so strictured as to have its circulation interfered with. In numerous cases art may for a time seem to have rivalled nature; but if watched for a few months its imperfections become apparent—the boasted cures turn out to be only failures. The operation of Wütz er has proved more successful with its originator and with Rothmund than with any one else. In England it has been faithfully tried, and has failed again and again in the hands of good surgeons.[1] Among the cases operated upon in this city with Wütz er's instrument, I know of several failures that were at first regarded as cures by the opera-

[1] A late letter of Dr. Mott, of Mobile, in the *New Orleans Medical Journal*, confirms this fact, which I recorded in this manuscript, written in May last. English surgeons are now giving a trial to Mr. Wood's operation.

tors. With the instruments of Wützer and Rothmund the operation is easily performed, and in this consists the great merit of the plan. The principle of the operation is the same as that of Gerdy's. From the single puncture resorted to in the plan of Wützer, sufficient plastic inflammation can scarcely be developed to secure the permanent invagination of the integument; and in regard to securing this by the pressure with the outside piece of the instrument, the attempt is apt to be either futile or hazardous—futile, if from over-caution too little pressure is exercised; hazardous, if the amount of pressure risked is enough to occasion sloughing. If the metallic suture be used when practising the method of Gerdy, I believe that the operation would prove quite as safe and efficient a one as that of Wützer. In my own operations, I thought it better to modify the procedure of Gerdy and make use of the plug, or the internal strip of India-rubber (this latter I now think preferable, because, without distending the canal, it keeps a circle of the fascia and the invaginated scrotal integument in contact with its walls, and, moreover, it is more easily extracted than the plug), in order to secure the invagination. Where the sutures alone are employed, they are apt to cut and allow the invaginated structures to yield; and, moreover, the presence of a foreign body of some size in the canal saves the necessity of resorting to irritating applications, as recommended by Gerdy, to bring about adhesion of the opposing surfaces. Since operating on the cases detailed above, my attention has been called to procedures somewhat resembling those I employed. Dr. Hackenburg uses a silk ligature and a perforated ivory ball. Dr. Richardson, of the University of Louisiana, makes use of the silver wire suture (*Gross' Surgery*). Redfern Davis, Esq., reports in the *Medical Times and Gazette*, February 12, 1859, cases of femoral and ventral hernia operated on for the radical cure, by maintaining invagination of the integument by means of silver wire and small vulcanized India-rubber buttons the size of a split pea.

ART. IV.—*Extirpation of the Parotid Gland.*

By DAVID PRINCE, M. D., Jacksonville, Ill. (With two wood-cuts.)

MARTHA WALKER, a negro woman, aged sixty, has had a tumour in the left parotid region during forty years. At first she says it was small and movable; but it is now very firm, lobulated, extending from the ear, which is pushed back to what is usually the position of the angle of the mouth. The mouth is drawn towards the sound side from a paralysis of the muscles, probably from pressure and tension of the diseased growth upon the portio dura nerve. The patient has for a long time suffered great pain in and around the tumour, and has had ague during the autumn, and looks in a miserable condition.

After several days recruiting, during which she was purged and given whiskey and quinine by day, with morphia by night, the extirpation was effected December 16, 1859.

Before the operation the patient took an ounce of whiskey and a quarter of a grain of morphia. Then she was stupefied with a sufficient quantity of ether and chloroform, three parts of one to one of the other by bulk. As soon after operation as she was sufficiently aroused she took half an ounce of whiskey and half a grain of morphia.

Operation.—Present Drs. Gaddis, Edgar, Knight, Jones, Long, of Jacksonville, and Dr. Jayne, of Springfield, and some medical students.

The patient lying upon her back with the head turned partly to the sound side, a zigzag incision was made from above and behind downwards and forwards, so as to leave several square inches of skin upon the tumour. Museau's forceps having been implanted into the tumour and given to an assistant with directions to lift upon the forceps, the tumour was rapidly raised from its attachment to the sterno-cleido-mastoid muscle partly by cutting and partly by tearing with the fingers. Anything looking suspicious of hemorrhage was tied, or was cut off on the distal side of the ligature, and the dissection carried further. The external carotid artery came into view, and was tied above the origin of the facial artery. The facial artery was torn across and did not require a ligature. All fears of bleeding now being at rest, the parotid region was very soon cleared out. In order to remove every vestige of the disease the zygomatic arch was chiselled away, the temporal fascia and a portion of the temporal muscle, and the whole of the masseter muscle, were dissected away. The posterior portion of the external surface of the buccinator muscle was entirely cleared off. After this the muscular bed of the parotid gland was carefully examined and cleaned off, cutting away the temporary ligatures which had been applied as a precaution; the only ligature remaining being that upon the external carotid artery. In this clearing out process, the submaxillary gland was found to have a suspicious appearance, and nearly all of it was extirpated.

The ligaments of the temporo-maxillary articulation, the meatus auditorius externus, the mastoid process, and sterno-mastoid muscle, the styloid process and styloglossus muscle, and the muscular wall of the pharynx, the digastric muscle and the hyoid bone were brought into view. The last artery which bled was the internal maxillary, just as it dips behind the ramus of the inferior maxilla. This blood of course escaped from a retrograde flow.

The amount of blood lost was not great, and the operation was attended with fewer difficulties than had been anticipated. The serrations of the flap fitted nicely into each other. A few silver sutures, a few strips of adhesive plaster, some patent lint spread with simple cerate, a light compress, and a retaining bandage comprised the dressing.

Appearance of the tumour after extirpation.—The tumour was found to be distinctly divisible into three portions, two of which were imperfectly encysted, and the third not at all encysted.

The anterior half of the main tumour presented exactly the appearance of a scirrhus of the mammary gland in the stage of softening. The centres of the softened portions were semifluid, while, from these centres outwards, the material became gradually consistent, and then hard as leather.

The posterior half of the tumour had the appearance of original encephaloid growth, with fibrous bands traversing it in every direction, as if these might be the original divisions between the glandular cells of the parotid. This material occupied all the region of the parotid, and was separated from the anterior scirrhus portion by a distinct fascia, which appeared to be the original fibro-membranous investment of the parotid. This parotid portion of the tumour maintained a vivid redness upon its surface after keeping in alcohol, although its interior appeared at the same time (the time of writing this article), white on cutting into it. The anterior portion exhibited a dirty gray colour, both upon its surface and in its interior.

The third portion of the tumour was outside of the fascial investments of the other two, and extended up on to the temporal region, involving the temporal fascia. The appearance of this was that of crude scirrhus deposit in and among the natural textures, without any distinct boundary to make it practicable to distinguish with certainty where the diseased textures ended and the healthy began. It was in the removal of their third portion that the zygomatic arch, temporal fascia, a portion of the temporal muscle, and the masseter muscle were cut away.

The appearance of the tumour corresponds very well with the history of the case. There was first a movable tumour over the parotid, which was at first of very slow growth. Afterwards the parotid itself became the seat of cancerous disease, and the growth of this was more rapid. Lastly, the deposit of cancerous material began to be deposited above the tumour and interior to it.

Subsequent history.—At bedtime the patient was able to swallow pretty well; took half a grain of morphia.

17*th*. Second day, morning. Comfortable; has slept a good deal, and has drunk a good deal of water; pulse 100.

8 P. M. Pulse 120, and pretty full; some drip from the wound.

Bled from the arm ℥vj, and the pulse became soft. She is to take every two hours twenty drops of sweet spirits of nitre, and every four hours four drops of Norwood's tinct. verat. vir., and at bedtime half a grain of morphia, if necessary.

18*th*. Third day. Slept well, and was comfortable without taking the morphia. Tinct. verat. vir. kept up; pulse 102. Took some gruel, and drank freely of water during the day. She was in perspiration during the latter part of the day; urinated freely. Some drip from the wound.

19*th*. Fourth day. Pulse 80. The veratrum viride is discontinued, after having been taken in four drop doses every four hours for thirty-six hours —altogether thirty-six drops. Some drip from the wound. She gets up and walks across the floor.

20*th*. Fifth day. Pulse 80. Comfortable. Takes more nourishment. She takes a little whiskey and water, and one-third of a grain of morphia whenever there is pain or uneasiness. At night, pulse 100; whiskey discontinued; flaps swollen.

21*st*. Sixth day. Vomited. Took infusion of senna and sulphate of magnesia, with free catharsis, and relief of uncomfortable symptoms.

26*th*. Tenth day. Pulse varies from 70 to 100. Extensive sloughing of the flaps; wound granulating well; the periosteum upon the inferior maxilla separated from the bone; applied slippery elm poultice to the wound. She takes one-third of a grain of sulphate of morphia often enough to feel pretty comfortable; some whiskey several times a day, and every night and morning five grains of sulphate of quinia.

28*th*. Twelfth day. Pulse 90. She has had a good appetite, which is now diminished; wound suppurating very freely. Same treatment.

30*th*. Fourteenth day. Pulse 90; more appetite; sloughs have separated, and the wound is clean, and is granulating finely; simple cerate substituted for the slippery elm. Quinine diminished to two and a half grains twice a day; other treatment the same.

January 6, 1860. Twenty-first day. Wound diminished one-half. She takes two grains of quinia twice a day, and a tablespoonful of whiskey three times a day. She also takes freely of rich food.

8*th*. Twenty-third day. Nausea; a brisk purge cures this and sharpens the appetite.

The exfoliation upon the inferior maxilla is extremely thin, and is separated particle by particle, giving place to healthy granulation upon the bony surface.

From this time she went on very well. It was necessary to keep up the stimulating and anodyne treatment until the wound was entirely cicatrized.

Fig. 1.

Fig. 2.

The accompanying figures represent her appearance—Fig. 1, on the day before the operation, and the other, Fig. 2, on the first of March.

Remarks.—Notwithstanding the frequency with which reports of extirpation of the parotid gland occur in surgical literature—Velpeau claiming to have removed it twenty times—there is still a doubt in many minds whether it ever has been or can be done. In Erichsen's excellent work on surgery occurs this doubting passage: "Excision of the parotid itself is occasionally spoken of, but is very rarely if ever done. I believe that in most, if not all, the cases in which it is stated that complete removal of this gland has been accomplished, tumours overlying and compressing it have been mistaken for it. It is evident that a diseased parotid could not be removed without the division of the external carotid and the portio dura."[1] Very true; but the external carotid and the portio dura are not essential to life, though the portio dura is very essential to symmetrical expression.

Velpeau thinks, "The question whether the parotid in its totality may be extirpated has been incorrectly stated. The salivary glands, including with them the parotid, scarcely ever degenerate. The tumours that have been removed under their name almost all belong to other tissues and to other organs. Even in the substance of the parotid itself there are a great number of lymphatic ganglions. These ganglions, when they swell, become fungous, tuberculous, and cancerous, and are transformed into bosselated tumours, which spread out, flatten, and disorganize the glandular tissue, and lead to misconception of the real character of the parts extirpated."[2]

Chelius makes no such distinction, but says: "The parotid gland is subject to a variety of degenerations of its tissue, by which its size is increased, and a larger or smaller swelling is produced. It may be the seat of induration, of a sarcomatous degeneration, of scirrhus and cancer, and of medullary fungus. * * *

"The removal of the parotid gland belongs to the most difficult and dangerous operations, and is by many considered totally unpermissible. * * * Experience has repeatedly proved the possibility of extirpating the parotid."[3]

Samuel Cooper, in his "Surgical Dictionary," thinks the parotid was repeatedly extirpated in the last century. Dr. Reese, in a note to Cooper's Surgical Dictionary, gives Dr. Samuel White, of Hudson, N. Y., the credit of having first performed this operation in the present century, having successfully done it in 1808.[4]

Dr. Brainard, of Chicago, who has reported a case of extirpation of the

[1] The Science and Art of Surgery, by John Erichsen, Blanchard & Lea's edition, 1859, p. 741.

[2] Velpeau's Operative Surgery, Mott's edition, N. Y., 1847, vol. iii. p. 449.

[3] Chelius' Surgery, by South, Lea & Blanchard's edition, 1847, vol. iii. pp. 522, 523, 524.

[4] Cooper's Surgical Dictionary, by Reese, Harper's edition, 1838, vol. ii. p. 288.

carotid in this journal, for October, 1853, and two subsequent cases in the *Chicago Medical Journal*, for December, 1859, thinks the operation is easier of execution when the gland is enlarged in disease than when in its healthy state, on account of a lifting up of its deeper substance, and he quotes M'Clellan as being of the same opinion. As Dr. M'Clellan performed this operation eleven times, he ought to have become familiar with its difficulties and facilities.

The most important point in this operation is to choose such an order in the dissection as will enable the surgeon to obtain an early command of the bleeding by ligature or rupture of the external carotid and its branches. To this end the lower (proximal) portion of the tumour must be lifted out of its bed first, and the upper (distal) portions of the tumour dissected or torn away afterwards.

Velpeau, notwithstanding his twenty operations, seems unmindful of this point, for he advises, "To commence at the superior part, and then go to its posterior border, in order not to fall upon the carotid at the beginning."[1]

Malgaigne gives exactly the same advice: "The diseased mass is detached, commencing at its upper portion, and then its posterior border, * * * you thus avoid wounding the carotid in the outset of the operation."[2]

Liston's advice is much better: "The dissection should be carried deeply to the lower boundary of the disease, where the vessels are known to enter; these will at once be divided and compressed; or they may be tied, either when very large, or when the fingers of the assistant are in the way of the further and perhaps more delicate dissection. Thus, the operation is pursued safely and satisfactorily, and it will be found always much better to meet the danger at once than to be obliged to tie one vessel after another, perhaps securing the various branches over and over again, instead of the trunk; much less blood will be lost, the time occupied in the operation will be abridged, and the pain and suffering very much diminished; in point of fact more may thus be effected, and with equal safety, in five minutes than can be done in fifty, when the proceeding is otherwise conducted."[3]

[1] Velpeau, by Mott, vol. iii. p. 448.

[2] Malgaigne's Operative Surgery, translated by Brittan, Blanchard & Lea's edition, 1851, p. 347.

[3] Liston's Practical Surgery, by Norris, Philadelphia, 1842, p. 327.

Art. V.—*Animal Chemistry, and its Relations to Therapeutics.*

By J. L. Teed, M. D., of Mendota, Ill.

Among the many problems presented to the consideration of the physician, perhaps none demand so much of his attention as those relating to *Nutrition*, while none are more intricate or more difficult of solution. From the first introduction of the food to its deposition as tissue, or rejection as waste, a series of changes are continuously in progress full of the deepest interest, and on the correct performance of which the comfort, and even the very existence of the individual depend. The growth of infancy to childhood, and of this to mature years, with the future development of a healthy or diseased offspring, the very foundations of individual prosperity and of national greatness, have the due performance of these series of functions for their support and basis; while the daily health of every individual is, in by far the larger number of persons, good or bad, as these acts are well or ill-performed. The prevention of disease, also, relies chiefly on these acts as its sheet anchor, and in their treatment they present an importance of the first magnitude. If they be, therefore, so closely interwoven with every thread of our existence, of how much importance is it that the most correct views be entertained with regard to them, and that we should be able to follow them through their numerous ramifications. In continuing, therefore, our subject of "animal chemistry and its relations to therapeutics" we shall commence with *Nutrition*.

In its most extended sense this embraces—1. Food and drink. 2. The formation of the nutritive fluid, including the complete digestive act. 3. The nutritive act, properly so called. 4. The removal of effete matter thereby occasioned.

A very extensive work on the subject of food has been lately published at Giessen, by Dr. Jac. Moleschott, of Zurich. The first part, or the text, contains 570 pages; the second consists of 355 tables, covering 254 pages. The tables are chiefly analytical, some being comparative of various articles of food, showing their composition and relative value in several constituents. Such a compilation, if correct, cannot fail of being valuable, condensing a fund of information, which it would require years to collect.

The body of the work is divided into ten parts—1. Elementary Principles. 2. Their course in the Human Body. 3. The Necessity of Food. 4. The Kind and Quality of Elementary Principles required to meet the wants of the System. 5. Animal Meats. 6. Vegetable Meats. 7. Spices, Condiments, &c. 8. Drinks. 9. Physiological Properties of Meats, Spices, and Drinks. 10. On the Choice of Food.

This work may be rather considered as an elementary treatise; after a very careful perusal of the first six and ninth chapters, and a more cursory one of the last, there appeared nothing particularly worthy of notice, except

that the author had apparently examined all the travels in all parts of the world with the view of ascertaining on what the inhabitants of different countries subsisted. The analytical department of the subject is entirely omitted. The general chemistry and the physiology are sadly defective; it may be said to be of the most superficial character. Had the author entered into the details of the most reliable methods used in determining the presence and the amount of the various proximate alimentary principles in the different articles of food, and the examinations of these in the various stages of assimilation, and so forth, omitted much of his superficial matter, and thus given the space devoted to the food of savages to the minute examination of the diet of civilized nations, his work would have had a real and important value; as it is, the tables in the end are the only parts of much value. The work, however, will answer as a primary introduction to the study of dietetics; or, as a species of light reading, some amusement may be derived from learning the dietetics of distant lands. In his physiology the author follows the school of Mülder, whose protein and protein oxide theory he altogether accepts.

There is a great natural division of animals into carnivora and herbivora, a subdivision of the latter being graminivora; besides which are omnivora, including man. We have, therefore, in "comparative nutrition," that of all these classes of animals, all and each of which contains a rich field for investigation. Bischoff and Voit have paid particular attention to the nutrition in carnivora, and have lately published a most interesting treatise on it, to which we shall hereafter refer at some length.

The food of man may be briefly enumerated as containing muscular, adipose, and gelatinous tissues, the cereal grains, and various vegetables, milk, salines, and water. The composition of the cereals is very similar to that of muscular tissue, while vegetable albumen, fibrin, and casein, correspond to those of the animal kingdom; only the inhabitants of the Arctic regions and of the Pampas of South America adopt a diet exclusively animal, the former using immense quantities of animal fat to supply the want of hydrogen and carbon, while the latter almost live on horseback, constantly using immense exertion, and only continue this mode of living for certain periods. The vegetable kingdom, however, furnishes the largest amount of human food; although flesh meat of one or other kind may be said to be the most important, no dietary being fully adequate to support human life without it, or its analogue equally derived from the animal kingdom.

The parts to be nourished, that is, the tissues, require special consideration, both with regard to their composition and their morphological arrangement. The tissues which have been the most fully investigated are, perhaps, bone, cartilage, and muscle. Other tissues have received a large share of attention, but these will suffice as giving a good general idea of the subject.

The muscular tissue is composed of the muscular fibre or tissue proper, of connective tissue which binds the fibrils into fibres and connects those of each muscle into a unit, of vascular and nervous continuations, and at either extremity it terminates in tendinous expansions connecting it to the parts intended to be moved by it.

The ultimate structure of the muscular fibril is still an undecided question; but, whatever may be the shape of the ultimate element, all authors are agreed that it consists of a cell, and that the fibril is formed by the superposition of these cells in the longitudinal direction. Now, "if in the living animal a muscle be separated from the surrounding tissues and left in connection with the rest of the body, only by the vascular and nervous trunks distributed to it, and then by electrical irritation be excited to repeated and long-continued contractions, there will ooze from its upper surface a yellowish glutinous fluid which will drop so constantly that it may be collected in considerable quantity in a vessel placed to receive it." (Wundt, quoted in *Arch. für Phys. Heilk.*, 1859, p. 146.) This fluid is supposed to be contained in the "plasmatic vascular system" of J. G. Sessing, which, as offshoots from the capillaries, convey only liquor sanguinis as their ordinary contents. Whether as Bowman describes, the muscular cells be discoid, or quadrilateral as according to Queckett, these vessels must pass in the connective tissue between the fibrils; and by their means every single cell throughout the entire muscle may be, and doubtless is, brought into immediate contact with the "living stream," from which it thus derives its nutriment direct, and not by transmission through other cells, as would be the case if the capillaries alone were the smallest nutrient vessels.

The osseous has as intimate relations to the blood stream as the muscular tissue, for it "is certain that the organization of bone is such that, notwithstanding the rigidity of their structure, they are in the most general and the most intimate relation with the nutritive plasma of the blood. In every situation when the osseous tissue is in connection with vessels, as on the external surface, in the walls of the medullary cavities and cancelli, and those of the Haversian canals, millions of closely crowded minute openings exist. These convey the blood plasma by means of the canaliculi into the lacunæ lying nearest to the surfaces mentioned, from which it is then conducted by wider canaliculi to the more distant lacunæ as far as the outermost layers of the Haversian lamellæ, and those lacunæ of the great lamellar system, which are most remote from the vessels. When the enormous number of the canaliculi and their multifarious anastomoses are considered, it must be allowed that no tissue in the human body is better provided for in respect of the distribution of the blood plasma, whilst in scarcely any other is the direct conveyance of the fluid to the most minute particles more immediately necessary than in it. There can be no doubt that the fluids which this plasmatic vascular system (of Lessing) of the bones obtains

from the bloodvessels are most indispensably requisite for the maintenance of the bone." (Kölliker, *Micros. Anat.*, Tr. by Busk & Huxley, p. 338, Am. ed.)

The same *mode* of structure is then found in both these tissues, and the same *method* of nutrition, viz., of direct and immediate contact between the parts to be nourished and the nutritive fluid

By digesting bone in very dilute nitric or hydrochloric acid we obtain the cartilaginous portion of the bone separately by itself, retaining all the shape of the bone, while by calcination the earthy part of the bone is preserved alone, equally preserving the original form. It is certain, therefore, that the two elementary constituents must be most intimately combined, perhaps not in chemical combination, but certainly not in merely mechanical mixture. The exceeding vascularity of osseous tissue shows us that both these elements, the collagenous and the earthy, require and receive a most minute juxtaposition with the nutritive fluid, while the energetic molecular change, which is continually occurring in them, teaches us that after osseous deposits have taken place they are not considered as outgrowths, to be provided for by the chances of circumstances, but that as it was necessary that the primary deposit of the earthy in the collagenous tissue should take place from the plasma, not by an act of crystallization, but by an act of vitality; not by a precipitation of effete matter, but by an act of secretion; and as this plasma must of necessity be brought to the secreting structure by a vascular channel, so this "molecular change" teaches us that these channels of vascular supply are as equally needed for the purposes of nutrition as primarily for those of formation. The diseased conditions of bone point also to the same end, of which the increased density and removal of collagenous element in old age, the defective secretion of the earthy element in rickets, the fatty degeneration in osteo-malacia, may be cited as examples.

To obtain a complete conception of the nutritive fluid it is necessary to examine not only the processes through which every article of diet has to pass, before it or any part of it becomes converted into blood, but also to consider the modifications produced by every separate article of diet as well as by the variations in which these are found in different dietaries. Such a detail being at present a simple impossibility, we shall notice only some of the more prominent features of the subject, and we propose to trace the processes to which the food is subjected in order that from it the nutritive fluid may receive its replenishment; and we shall consider each process separately with its peculiar effects on each element of food, premising that our object is to bring out leading principles, reserving an argumentative consideration of certain points for a future opportunity.

The first process is that of mastication, which needs only to be mentioned as a mechanical act of subdivision, but is of too much importance to be omitted, although too frequently neglected in practice, becoming thereby a "fons et origo mali;" a certain amount of atmospheric air, therefore of

oxygen, becomes thereby mixed with the food. The next is the process of insalivation, or the commixture of the food with the mixed saliva. In the *Leçons de Physiologie*, of M. Bernard, vol. ii., 1856, is a full detail of the salivary secretion to which we would refer the reader, giving here only a condensed view of the most important points.

The saliva secreted by the different glands differs widely in its characters and quantity; that of the parotid is the most watery and abundant, and is secreted principally during the act of mastication; that of the submaxillary is more scanty, but more viscous, and is more plentifully secreted during excitation of the nerves of taste; that of the sublingual and buccal glands being the most scanty, but excessively glutinous, facilitating the act of deglutition; the viscous element is called ptyalin. The reaction of the saliva is very alkaline. The secretion is not constantly the same in quantity, but is intermittent, depending on the presence or absence of its exciting causes. It is increased by dry and pungent foods, lessened in amount by moist and sapid food.

On albuminoid and fatty matters the saliva exerts no influence; but it has been long since observed that it possesses the property of converting starch into sugar; this has been attributed to a certain special substance contained in it, which has received the name of salivary diastase; this body is not, however, peculiar to saliva, but seems to be a resultant of the spontaneous decomposition of all nitrogenous matters, whether vegetable or animal, under the influence of oxygen; and it may originate in the saliva from the decomposition of some of the salivary constituents, such as epithelial cells, &c., in the oral cavity itself—a circumstance which is rendered more probable by the fact that morbid saliva is more energetic than healthy, as in mercurial salivation, and in inflammation of the mouth; and the greater activity of human saliva over that of all other animals may be owing to the continual access of air to the oral cavity.

It must be remembered, however, that complete putrefaction destroys this property. The presence of acids also arrests decomposition and prevents the further action of the saliva on the starch, not, however, hindering the operation of such "diastase" as may be already formed if used immediately; but if kept a day or two acidulated saliva no longer acts upon starch. The sole action of insalivation then on alimentary matters is to convert starch into dextrine and glucose or grape sugar. As soon as the alimentary bolus enters the stomach it becomes mixed with the gastric juice, a fluid strongly acid from the presence of lactic, or according to some of hydrochloric acid, and containing the animal principle, pepsine. The quantity of gastric juice secreted is very differently stated by different authors; although a very important matter, we can hardly deduce bases for therapeutic action from our present knowledge; we may say, however, that a certain degree of dilution is necessary for the due performance of the diges-

tive act, and we sometimes find advantage from tepid diluents shortly after eating, in some cases of difficult digestion.

On fatty matters the gastric juice exerts no influence; the fat is simply liquefied and floats free in the mixture known as chyme.

On starch and sugar the gastric juice exerts no influence, but the action of the saliva on the starch becomes hindered as soon as the saliva becomes acidulated by the gastric juice to the extent above mentioned. On albuminous and gelatinous substances the gastric juice exerts a powerful influence, dissolving them, and also modifying their properties, so that they, although previously intransmissible through an animal membrane, now permeate it readily; they become more easily soluble, are less easily coagulable, gelatin ceases to gelatinize, and they lose the property of forming insoluble combinations with most metallic salts; but they are so precipitated by tannic acid, chloride of mercury, and acetate of lead when mixed with ammonia.

In the stomach a large portion of the received matter is absorbed, especially of the fluids. Water is rapidly taken up, as also those solutions which will permeate a membrane having the blood serum on the opposite side, such as spirituous, weak saline, saccharine, and albuminous solutions; it is, however, only a limited quantity of the solid portion of the food that is absorbed in this organ; by far the larger quantity becomes mixed up into that homogeneous mass, the chyme, which is gradually transferred to the duodenum, to be still further modified by the pancreatic, biliary, and intestinal fluids. In addition to the gastric juice the stomach, like all other mucous surfaces, secretes ordinary mucus; that this is not an indifferent substance to the digestive process is seen from the fact that if in large quantities, it acts very injuriously, preventing the operation of the gastric juice, perhaps also to a certain extent supplanting it, and causing fermentations of various kinds, with the formation of abnormal products; in whatever quantity it may be present it, with the saliva, nasal and pharyngeal mucus, and the gastric juice, contain more or less excrementitial matter, which is probably the reason of its becoming an exciter of fermentation, as was observed in the case of the saliva.

A certain amount of atmospheric air, and therefore of oxygen, is conveyed into the stomach, and occasionally of carbonic acid also. Gases are as readily absorbed by the gastric as by any other mucous membrane, the walls of the vessels being as equally exposed; under the influence of heat and moisture, and during the various molecular alterations which here occur, the effects of oxygen are more energetically manifested, especially where the nerve force of the organ is diminished; a point worthy of attention in cases of dyspepsia, attended with production of excessive acidity. The small excess of the nitrogen in expired air over that of the inspired air may be derived from this source; there being no evidence that atmo-

spheric nitrogen ever enters into any combination whatever in the human body.

The especial action of the pancreatic juice, which is a highly albuminous, alkaline secretion, is to convert starch into sugar, and to emulsify fats, so that they are easily absorbed. Bernard (op. cit.) gives a very full account of the pancreatic secretion, and its influence in digestion; according to him, it serves also to redissolve albuminous matters, after they have been precipitated by the bile, from their state of solution in the gastric juice. The chief exception to his account of the digestion of fat by the pancreatic juice is its formation into glycerine and fatty acids; such an acidification of oil or fat as takes place outside the body would be quite abnormal within the body; it requires a longer period for its accomplishment in a water-bath than could be allotted to it in the intestinal tube; while such a formation of acid as we shall have occasion to notice more at length presently is a general accompaniment of difficulties in the digestive process. The great probability is, that fat is absorbed as neutral fat, emulsified by means of the pancreatic secretion, or chiefly so, that is, divided into small particles, each of which is surrounded by an albuminous envelop.

Poured into the duodenum at the same time with the pancreatic juice is the bile, another alkaline secretion, and one of the most important of all the fluids engaged in the digestive process. The action of the bile, like that of all the other fluids of the digestive canal, is still a subject of considerable discussion; it may assist somewhat in emulsifying fat; it, in all probability, has decided antiseptic properties; it may precipitate albuminous matters from their state of solution. Its water serves largely as a means of transit of biliary matters from the blood, and of nutriment and of other soluble matters from the intestinal tube back again in the blood-stream.

The various glands in the duodenum, jejunum, ilium, and cæcum, still further supply a series of fluids for the solution of nutritive matter, its elaboration and absorption, and the venous radicles throughout the whole intestinal tube collecting the absorbed food, pour it by one common trunk into the liver. As, however, cases are on record where the vena porta, instead of traversing the liver, entered at once into the vena cava, without any disturbance to the ordinary functions of life having been sustained, such an occurrence would prove that the food did not require any further assimilation than what it obtained by means of the various intestinal processes, before being perfectly capable of being applied to the purposes of nutrition. In these cases the liver secreted the bile from the blood of the hepatic artery.

As a summary, then, we may state that albuminous matter, whether vegetable or animal, is absorbed as albumen, gelatinous matter as gelatin, these being both modified, as before stated. Starch and saccharine matters

are absorbed as grape-sugar and dextrin, and fat principally as neutral fat, a small portion of fatty or other acids being formed.

According to Moleschott, in his work above noticed, the digestion of amylaceous food proceeds thus: The starch is first converted into dextrin, $C_{12}H_{10}O_{10}$; this absorbs 2HO, and becomes grape-sugar, $C_{12}H_{12}O_{12}$. This change may occur throughout the whole length of the intestinal tube, from mouth to rectum. The sugar then loses 2HO, and becomes hydrated lactic acid, $C_{12}H_{10}O_{10}+2HO$, which occurs partly in the stomach, more so in the small intestines, but principally in the cæcum. The hydrated lactic acid then becomes split up into hydrated butyric acid, $C_8H_7O_3+3HO,4H,4CO_2$, which occurs principally in the colon. This metamorphosis of the fat-formers (Fettbildner) into a series of acid formations, like Bernard's formation of fatty acids noticed above, is open to some very serious objections, is quite contrary to deductions from pathological phenomena, and is quite opposed to the teachings of therapeutics; if followed out, it would certainly lead to a very injurious practice; for if this were the mode of their normal digestion, attacks of *indigestion* would be most readily relieved by the use of means that would *promote acidification;* and in cases of weak digestion, these acids, taken directly, would save all the labour of their formation from these substances, thus a large amount of force would be saved, and digestion would be so much the more easy.

In various pathological conditions, especially in states of hyperæmia and irritation of the gastric mucous membrane, large quantities of mucus are thrown off, while in many of these cases the proper secretion of gastric juice is checked; this mucus very readily enters into or induces various decompositions known as fermentations, partly from want of a better name, and partly because these processes may be simulated by fermentative processes outside the body. Instead, under these circumstances, of the alimentary principles being dissolved and absorbed in the condition produced by the normal or healthy secretion of the part, acids of various kinds are produced; thus, albuminoid, saccharine, and fatty matters will give rise to lactic, acetic, butyric, and other acids, while other foreign bodies will necessarily be formed, containing the nitrogen, sulphur, and phosphorus of the albuminoid matter. These will be as largely absorbed as they are formed, and the consequences will be a disturbance of the ordinary alkaline reaction of the blood, lithic acid will be discharged extensively by the kidneys, either alone, but more generally in combination, other acids will be thrown off in the sweat, various fetid matters will pass off from both skin and lungs, and numerous morbid states induced, dependent on this state of acidity, and the relative weakness of this or that organ. The means of cure assist in the explanation of these phenomena. Alkalies, especially potash, which, forming the most soluble salts, is most readily discharged by the kidneys, alkaline earths, which, forming more insoluble compounds, pass off by the bowels, are the most successful remedies by which, with moderate evacuants, we rid the

system of the amount already formed; we then check the further development of such acids, in which the real cure consists. This is done in three ways: one, by directly developing nervous force, as by travelling or voyaging, or much exercise in the open air, and preferably where the mind may at the same time be agreeably entertained; a second, by directly supplying the deficient element, as by administering pepsin; and the third, by mineral acids, tonics, and antiseptics, with or without sedatives and counter-irritants, the food being, at the same time, that most easily and extensively digested by the parts of the intestinal tube least affected, so as to allow the weak part to rest as much as possible, that its irritation may subside, and its force be regained by cumulation. The more we can effect by dietetic management and by hygiene, the more permanent will be the cure, and, with proper care, the less liable will the disease be to return; this much, however, being self-evident, that the manner of life, or whatever cause, first inducing the disease, will be the one most likely to cause its return, and hence a frequent cause of failure in the treatment of dyspepsia, patients either will not or cannot give up or alter that mode of life under the influence of which the disturbance first originated.

If such be the teachings of pathology and therapeutics, the hypothesis of acid formations as the regular mode of digestion of starch, sugar, and fat must necessarily fall to the ground. The subject is one of such vast importance in every-day practice, that the author hopes this seeming digression will be pardoned.

Having thus considered the formation of the nutritive fluid as far as the introduction of true alimentary matter into it, the fact remains to be noticed that all animal and some vegetable foods contain those proceeds of retrograde metamorphosis which are peculiar to the tissue; thus, muscular flesh contains creatine and creatinine, and what other residuary products of the nutritive act may be contained in its retained plasma or blood, particularly when the animal has died without previous hemorrhage. Now, as these are found directly in the excretions as well as in the tissue, it would be contrary to all known principles to suppose that these effete elements, introduced in the food, should be first raised to the condition of albumen, and then retrograde to their original composition. No upbuilding in the scale of composition occurs in the animal economy; all alimentary substances introduced into it must be of the highest and most advanced formation of which they are capable. Albumen, for instance, cannot be supplied by any substance or substances of a lower grade, from which it may be subsequently formed in the organism itself; all that we observe is, that nature has furnished us with several modified forms of the same substance, which are all convertible into one form, which may therefore be considered as the standard or typical form, their elementary composition suffering no changes, or but one of molecular arrangement, as we express it. We find in the carbo-hydrates a similarly convertible family, to which are closely

allied the fats, and in the metamorphoses which occur in the processes of assimilation and nutrition the direction is the same; thus albuminous matters may give rise to carbo-hydrates and fats, or their derivatives. Carbo-hydrates may also give origin to fats, but fats cannot give origin to carbo-hydrates nor albuminates, nor carbo-hydrates to albuminous formations. Many, therefore, of the solid parts of the food enter the blood stream, only to be rejected by some peculiar excretion. This is an important principle in the treatment of disease, especially when, from any disorder of function, either of excretion or of formation, any of the principles of retrograde metamorphosis are in undue excess in the blood; in such cases all alimentary substances, which, besides being convertible into such principles in the direct line of retrograde metamorphosis, contain any of them as an already existing element, a consequence of that act of nutrition which maintained their own existence while living, should be avoided. Thus, in some diseases—as fevers—we find a great excess of uric acid, in others of urea; from the changes in whichever of the nitrogenous tissues these or either of them may be derived, a flesh diet, especially gelatinous, which increases their amount, even in a state of health, is prejudicial, while a vegetable diet, under which they decrease, is to be preferred. We find also that the products of fermentation which are contained in food, a consequence of vitality, as in the case of sprouted grain, render it unwholesome.

In addition to the water, sugar, albumen, and fat, the blood contains also another important class of nutritive principles, the salines. Some of these are combined with the nitrogenous principles, and this so intimately, that it is almost, if not quite, impossible entirely to separate them; but in the act of nutrition they become separated when the albuminous body suffers decomposition, and obey the general laws of excrementitious matter. Others of them form a portion of nearly every article of food and drink, so that sulphur, phosphorus, iron, lime, and magnesia are but seldom used as dietetic, though often as medicinal substances, common salt being the mineral especially added to our food as a separate ingredient. As all these are being continually received with the ingesta, and removed with the egesta, they are constant ingredients of the nutritive fluid.

The residua of nutrition, in their transit from their place of formation to that of their excretion, form very important component parts of the blood stream, as also all those unassimilable or unnecessary substances which may have been absorbed during the process of digestion, but are again eliminated by the excreting organs. Among these may be named carbonic acid, urea, uric, phosphoric, sulphuric, hippuric, lactic, and oxalic acids, creatine, creatinine, biliary colouring matter, extractive, &c.

In addition to the above-mentioned components of the blood stream, all of which are present in the fluid or dissolved condition, there are another series of bodies, which belong properly to the class of solid formations, viz., the blood-cells, red and colourless, or the mature and young; these

derive their nourishment from the plasma, and give off the residua of their nutrition, and the results of their destruction, to be separated by the eliminating organs; the same rule holding good to them as to all other parts of the system, viz., that those molecules which, under any form, have been used in the processes of life, are no longer capable, when they have once passed through their stage of vitality, of again entering into the formation of animal principles of the same or of a higher order, but are either immediately eliminated, or become so after passing through successive stages of downward or retrograde metamorphosis; thus, the iron of those corpuscles which become destroyed or broken up is expelled, and does not enter into the formation of fresh corpuscles, and its place must be supplied from without, by fresh iron, *i. e.* fresh to that individual; this, although derived from another individual possessed of life, during the digestive process has its capability continued of entering into the composition and sustaining the functions of the living body consuming it, until it in its turn shall have become effete; while any that may have become effete is not assimilated, but is discharged; and the organ chiefly containing these residua—as the spleen (and sometimes also the liver)—forms an article of food of very indifferent quality, and frequently causes great intestinal disturbance. In the case of the liver other effete matters may be also concerned. An excessive destruction, a diminished supply, or a faulty assimilation, will therefore have the same ultimate effects, and a condition of anæmia or of chlorosis will be the result. In some cases an increased supply remedies the mischief, in others the destruction must be checked, and again in others the powers of assimilation must be increased. It is generally conceded that a great destruction of blood-cells occurs in the spleen; in cases of ague we often observe congestive enlargement of this organ followed rapidly by anæmia. A short course of iodide of potassium, especially if taken early, is generally followed by subsidence of the congestion, diminution of the size of the organ, and a stop to the anæmia. The *modus operandi* is not the point in question, but that there is primarily congestion, that this is accompanied by destruction of the blood-cells; and this results in anæmia BECAUSE the iron is *discharged*, and fresh red corpuscles are not formed in sufficient quantity to replenish the loss; but when the congestion is *removed*, the destruction of blood-cells *ceases*, and the anæmia is soon replaced by the ruddiness of health. These are sequences which speak for themselves. Examples of the first case in chlorosis, and of the third in some of the complicated forms of phthisis, present themselves in every-day experience.

With the blood-cells and the alkaline carbonates of the serum are intimately connected the conveyance of the oxygen and carbonic acid gases, which are constant elements of the blood.

The nutritive portion of the blood may, therefore, be comprised under water, corpuscles, albumen, sugar, fat, oxygen, and salines.

We have before seen that the tissues to be nourished consist of cells lying

closely applied to a series of plasmatic or nutritive vessels; in these tissues two acts are required to form by their combination the full nutritive act; the first consists in the exchange of a portion of the cell contents for a portion of the circulating plasma, and the second in the formation of the heat necessary to vitality by the direct oxidation of certain substances, either primarily brought into the tissues by the fluid itself, or else derived from the accomplishment of the first act. From the formation of the tissues, as before shown, there arises of necessity a great opportunity for the full action of the oxygen present from the retardation of the circulation, and this retardation is evident from the following calculation: The amount of blood which passes through the left ventricle in a given time is derived from the whole circulating apparatus in the same time; therefore, as much as the area of the extreme vessels exceeds the area of the left ventricle, by so much is the current through the extreme vessels slower than that through the left ventricle; if otherwise, the heart would be irregularly supplied, being sometimes completely empty and sometimes gorged, a condition of things not long compatible with life. And further as the area of the plasmatic vessels is still greater than that of the capillaries, and, as they form in a certain manner, courses out of the direct circulation, the rate of the current suffers still further retardation in them.

As the first act of nutrition consists of an interchange between the cells and the vessels, of portions of fluids holding certain matters in solution, it is of necessity that the molecular changes occur in the cell-fluid and cell-walls and not in the vessel-fluids. The parts to be nourished consist chiefly of C,H,N,O; their elements being no longer used in upbuilding tissues, but entering on a course of descending transitions, are finally expelled the system; the matters given off by the cells undergo a "dédoublement" or splitting into two portions or classes, of which one is rich in nitrogen, the other being poor in that element, or, according to Bischoff, being entirely destitute of it; this latter, under the influence of oxygen, forming CO_2 and HO, and thus generating heat. Hence nitrogenous food is absolutely essential to nutrition *in proportion sufficient to cover this loss*, while carbohydrates chiefly serve the purposes of animal heat. Where a due supply of nutriment is not afforded, the matters dissolved in the exosmosing fluids cannot be fully replaced from the vessel-fluids; and this decrease continues *pari passu* in the cell-fluids and in the vessel-fluids, the latter always retaining the predominance as long as any nutrient matter remains capable of being assimilated; and when an osmotic balance is reached the cells neither give off nor receive; life is, therefore, extinguished, and, after death, they are found pale and shrunk, but they are not dissolved, nor is there any trace that a single cell has been removed, from a muscle for instance, it is only the cell contents that have disappeared, *i. e.* their nitrogenous matters held in solution, a larger portion of the water still remaining and the muscles are said to be watery. (*Virchow's Arch.*, vol. xviii. p. 174.)

As soon, therefore, as osmose ceases, the maintenance of animal heat ceases, because after all the carbo-hydrates and fat have been consumed, nothing remains but this splitting of nitrogenous matters; and as soon as this is suspended, although there may be still inspiration of oxygen and absorption of it into the circulating fluid, there is no material on which it can act, as its action is neither on the nutrient fluid nor on the tissues, but on the matter given off from the tissues, which matter is replaced from the nutrient fluid. When, therefore, osmose ceases, the matter ceases to be given off, the action of the oxygen ceases from want of matter on which to act, heat ceases to be developed, and with this is the cessation of life.

It is obvious that as each of the tissues has a different composition, they must each require a different molecular deposit, and the series of rejected compounds will also differ; thus the compounds arising from the splitting up of the effete atoms of the cerebral tissue will differ from those of the muscular, these again from those of the osseous, and all of them from those of tendinous, ligamentous, cartilaginous, and parenchymatous structures, and in the proportion in which the vital activity in any one of these tissues exceeds that in any of the others, or the general activity of the whole, will those proximate principles be more abundant to which that particular tissue will give origin? At present, however, it would be premature to connect the formation of any principle with the molecular alterations of any organ.

It would also seem to follow as a legitimate conclusion from this, that, at least in some cases, a "*dédoublement*" may occur in the albuminous or nitrogenous element deposited at the time of its separation from the nutritive fluid in order to become a component of the tissues. Should this be actually the case, it must follow that there must be more than one nitrogenous product of tissue change; this especially appears when we consider the different composition of the different tissues, such as cartilage, muscle, cerebral, and glandular tissues, blood-corpuscles, &c. &c. We can hardly bring ourselves to conclude that all the effete nitrogenous matter in all these different tissues, and that both in formative and retrograde metamorphosis, enters into one single formation, sometimes, that is in the same tissue, giving off an excess of C and H, and at other times absorbing these elements to supply the deficiency. And as we also find that differently composed nitrogenous foods occasion corresponding differences in the nitrogenous excreta, it would seem logical to conclude that corresponding differences occur in the tissue-change of such tissues in the organism itself; thus we find that gelatinous food occasions a larger excretion of urea than the use of any other; it is, therefore, no strain of argument to conclude that the tissue change in the gelatinous tissues occasions a greater formation of urea than the tissue change in any other tissue; and, if such be the case with regard to the gelatinous tissue, to what especial principle does tissue change in each of the other tissues give origin? Shall we be also obliged to declare that creatine, creatinine, &c., are products of the decomposition of urea during

the analysis? We can detect them in the muscular juice, *i. e.* in the food, and again in the excretions. Is it too much to suppose that they enter the blood stream only to be rejected by the proper secretion? and, if so, why does not the tissue change in the muscular tissue especially give origin to these principles? There are many substances which are absorbed into the blood stream from their osmotic or other physical properties, but being foreign to the organism are carried out of it again as soon as possible; such are excess of water, chloride of sodium, several salines of daily and common use; it is, therefore, only an extension of the same rule to apply it to those principles of retrograde metamorphosis which may be contained in any article of food. Again, the osseous tissue is the seat of a very active circulation, and, consequently, of as active nutritive changes. May not this tissue give extensive origin to formation of urea? The nervous tissue is especially rich in phosphorized fats, and the residua of its nutrition will have an especial reference to its composition. A clear and full comprehension of the elementary composition of each organ and tissue will give one link in the chain of its nutrition by showing what elements are especially required, while by knowing the proximate principles from which these elements are obtained, and by getting the especial results, if any, of feeding animals for some length of time, on such or such a tissue or organ, we may arrive at more definite conclusions on the subject; the examination of the blood-stream coming from such organ or tissue may yield only negative results, if the principle sought be present only in very small quantity.

The carbon, hydrogen, and oxygen given off in the splitting up of nitrogenous bodies, and arising from the direct absorption of non-nitrogenous matters, are given off chiefly as carbonic acid and water, sulphur and phosphorus as sulphuric and phosphoric acids, in combination with various bases. Amongst the nitrogenous formations that of ammonia, as an original formation, is a matter of much dispute, as a constituent of food it is but rarely absorbed, but as an element of excretion it is often met with; as ammonio-phosphate of magnesia it forms a frequent deposit in the urine, and is often met with in feces. The relations, however, between ammonia and urea are such that it is easy to suppose the latter may give rise to the former within as well as without the body. According to Lehmann, ammonia is nearly absent from healthy human urine. According to Voit, it is also absent from that of carnivora, urea being its sole nitrogenous component. In order to be enabled to transfer the teachings of comparative experiments to the human subject, it is necessary to observe them through all classes; and in nutrition in herbivora we have a very remarkable phenomenon, viz., the formation of hippuric acid; this not being peculiar to them, however, being also found in human urine. It is found, also, as an especial production after the use of a substance which contains no nitrogen, viz., benzoic acid, $C_{14}H_6O_4$; and after the use of some fruits, such as apples, plums, &c., as this acid is not found in the urine of carnivora, and under

certain feeding is also absent from the urine of herbivora, and also from human urine, and as its contents of nitrogen is only one-half that of urea while its carbon is eighteen times as great, and its hydrogen three times as great, it would seem that its formation depended on the combination of the nitrogenous portion of the effete matter with that excess of carbon and hydrogen over and above what the oxygen present could convert into carbonic acid and water, which junction taking place in the nascent state, or while the various elements are rearranging themselves, it becomes a primary formation in the metamorphosis of tissue; in the same way as that an excess of carbon alone, or a relative deficiency of oxygen, occasions the formation of oxalic acid.

From the foregoing we may deduce the following law: that, as the food consists of carbon, hydrogen, oxygen, nitrogen, &c., in varying proportions, and as the various tissues contain the same elements, and also in varying proportions, it is of necessity—that as these elements are neither taken in nor thrown out in their elementary form (except oxygen, this, however, not being taken pure), but in various combinations as proximate principles, just in proportion to the differences in the food, and in the relative tissue-change in each of the tissues, will the proximate principles of the excretions vary, not only in the amount of each, but also in the very presence or absence of any one or more; and, therefore, the law of the formation of either one is not so much a law of the individual or species as a result of the circumstances in which the individual was then placed.

Bischoff and Voit have lately published a work on the Laws of Nutrition in Carnivora. They kept a dog for about fifteen months, and in this work they have given the results of their experiments. In order to give a better idea of the detail we will condense the argument contained in the first part of the introduction.

They first declare the whole of their superstructure to rest on the fact that all the nitrogen (except air) discharged from the body is a product of tissue change, and tissue change only; that the idea of oxidation of nitrogenous matter in the blood-stream is erroneous; and that the result of all the tissue change of nitrogenous tissues is urea, and urea only; and B. complains that his former work on this subject has not received the amount of consideration which it deserved. From the molecular decompositions are derived the various forces, of which two are especially noticed at some length: the force of motion, *i. e.* the internal motions, such as solution, absorption, circulation, and respiration; and the force of heat—these forces being correlated, and mutually convertible.

The author then argues that the motor forces are generated by the decompositions of nitrogenous matter under the influence of oxygen, perhaps under the form of ozone; while heat is given off by the decomposition of fat and the fat-formers. The amount of motor force generated is proportional to the mass of the organ, and its continuance to its replenishment

by food; while the decomposition of both nitrogenous and non-nitrogenous is owing to the effects of oxygen, and the results in both carbonic acid, water, and urea may be considered as oxides. He then states the question: "If such be the decomposing influence of oxygen, how is it that the albumen of the blood is not consumed by it?" To this he replies that the combination of matter with nitrogen greatly reduces its oxidizability and combustibility, and that thereby, *i. e.* owing to its nitrogenous element, the albumen in the blood is protected; then he asks: How is it then that the nitrogenous *tissues* are decomposed under the influence of oxygen? The following view of tissue change contains the answer:—

The organ, the muscle, the cell are the material expressions of those molecular forces, which preserve their molecules in these separate forms. Their existence has, as a constant element, a continual interworking with nutritive material, *i. e.* plasma, and atmospheric oxygen. This interworking consists of a double attraction, which both plasma and oxygen exert on this or that organ, and is produced only by the simultaneous co-operation of both; we may comprehend it best under the idea of a pressure on the part of the plasma, and an attraction on the part of the oxygen, which produce a fresh molecular arrangement in the organ. Neither oxygen nor plasma are sufficient separately; both are required to produce these effects.

The decomposition being always the result of the co-operation of all three of these factors, it is always directly proportional to the mass of these factors, *i. e.* of the organ, the plasma, and the oxygen.

It is increased when the bulk of the organ is large or increasing; it will decrease when the bulk of the organ is small or decreasing; being, however, within certain limits independent of the quantity of the plasma or of the oxygen.

It will increase when the bulk of the plasma increases, even if the bulk of the organ should not increase, and the action of the oxygen should not increase, but decrease.

It will decrease if the bulk of the plasma decreases; but it will in this case even exceed the quantity proportional to the plasma, if the bulk of the organ and the quantity of the oxygen be large.

It will also increase if the quantity of oxygen be increased, even although the quantity of the organ or of the plasma be not greater, but less; it will decrease if the quantity of the oxygen be diminished directly or indirectly, that is, if a portion of the oxygen be otherwise combined.

It is evident, therefore, that decomposition is always a complicated product of the operation of these three factors, and can only be understood by a careful examination of all three.

The bulk of the organ will be dependent on the relation which its replenishment by the food, *i. e.* the plasma, bears to its decomposition; it will increase or decrease, or remain stationary in bulk, just as the plasma brings

more or less fresh material, and as the decomposition is more or less active, or the quantity of oxygen is increased or diminished, or otherwise absorbed.

By these decompositions force is liberated, and as heat is provided for by the decomposition of non-nitrogenous material, so by that of the nitrogenous portions motor force must be supplied; while this is without question required for the keeping up the before-mentioned internal motions.

If we consider an animal without food, and in a state of rest externally, it is then living on its organs and blood constituents; it presents an amount of decomposition, depending on the bulk of its decomposing organs, and the quantity of albumen and absorbed oxygen in its blood. The force which is thereby liberated is used for the uninterrupted maintenance of the internal motions, which are absolutely necessary to its existence; and it is proportional to the bulk of nutritive material moving in this condition, which, according to the bulk of the organs, gives the proportion of the decomposition on which the amount of disposable force is dependent, most strikingly exhibiting the harmony between cause and effect.

As the decomposition is the result of the mutual operation of the organ, plasma, and oxygen, and as by it the force is liberated which is necessary for the internal motions, this is proportional to the amount of plasma to be moved; and this last is again, the influence of the organ and of the oxygen remaining the same, the measure of the decomposition.

When we give an animal food the amount of the blood of the plasma is increased, therefore also the amount of the decomposition is greater, and consequently a greater amount of force liberated, on which the movement of the plasma is entirely dependent, the bulk of the organ being considered.

But with this view of the case the animal would still be in a fasting condition, and the loss of its organs would not cease, because the newly taken food would only yield the force necessary to provide for its own movement.

But herewith is connected at each introduction of food a diminished operation of the oxygen on the decomposition in the organ.

While the primary result of the decomposition of nitrogenous matters is the supply of force necessary to internal movements, there are subsequently formed products, having reference only to the development of heat. The greater the decomposition from increased supply of food, the greater the amount of these products of decomposition, and therefore the more oxygen will be absorbed by them. But the disposable quantity of oxygen in the blood is limited. The more therefore is used as above, the less remains for the primary decomposition, of which it also is a factor. The influence of the bulk of the food on the decomposition bears an inverse proportion to the operation of the oxygen on it. When the former is increased the latter is diminished, from the increased amount of decomposition products; and when the former is diminished the latter is increased, because less is then absorbed by the fewer decomposition products. Both influences are not

developed in an equally strong degree, consequently they do not generally act equally strong on the decomposition; but they are developed, and act only proportional to one another. In proportion as the supply of plasma increases, in the same proportion the operation of the oxygen is diminished. The general result being that with a stronger flowing plasma the relative decomposition of the organs is always less. So long, therefore, as supply and decomposition are not in equal proportion, the portion which the organ loses by its decomposition will gradually decrease with the increase of the supply, until an equilibrium is reached in which the supply entirely replaces the decomposition in the organ; and if the former be still increased, then the possibility of deposition, and consequent increase of the organ is induced. But in order that this should continue, the supply must be still further increased. For as soon as the mass of the organ increases, the decomposition is consequently increased, and the same amount of food yielding now no longer an excess, indeed not much longer an equivalent, but very soon a relative deficiency, a decrease of the organ again ensues. In this manner, by increasing the supply and consequent diminution of decomposition from absorption of oxygen, by increased decomposition products, an increase of the organ will ensue, until the operation of the oxygen is so much reduced, and the decomposition sinks so low, that the force necessary for the assimilation and movements of the food can be no longer supplied. The animal then ceases to eat; but as the decomposition is continued, whilst the supply is diminished, the equilibrium is soon re-established, and sufficient force is soon generated for a fresh movement and assimilation of the food.

The same effect which is produced thus indirectly by the increased amount of decomposition products is brought about directly by the entrance of oxidizable substances—as fat, sugar, and alcohol—into the blood; which, by absorbing the oxygen, lessen the amount of the general decomposition. This will be always somewhat proportional to the supply of albuminous plasma. Is this very limited, as the result of an entire want of nitrogenous food, then the decomposition will be diminished in proportion to the quantity of fat and sugar consumed; it will, however, from the circumstances mentioned above, always remain sufficiently great to supply the forces necessary to the maintenance of the internal movements. This internal force is but little influenced by the taking of fat or sugar; for, as these matters pass in extremely small quantities from the digestive tube into the blood, they will be continually burnt in the blood as they arrive, and thus they do not require the same amount of motor force as the nitrogenous substances, which must permeate the entire organism, to undergo their decomposition in the minute tissues. The decomposition of fat and sugar develops but little force; there is, however, but little required; and thus, although fat and sugar are absorbed into the blood, the proportional relations between decomposition and motor force are not disturbed.

If, however, in addition to fat or sugar, nitrogenous food is introduced into the blood, the same conditions and results are developed, as before stated. The increased supply of plasma increases the decomposition. That occasioned by the increase of the plasma is added to that of the fasting condition, and at first the increase of the supply will not lessen the consequent decomposition and wasting of the organs; indeed, each continued increase of the supply will, as before, produce a continual increase of the decomposition, and a continuance of the waste of the organs, in order to liberate the motor force required by the increase of the plasma. But the intervention of fat or sugar will place an earlier limit to this proceeding. From the use of them less oxygen will be free to maintain the decomposition by its influence, and consequently the limits will be the earlier reached, where, by continuance of supply, the decomposition will be counterbalanced, and finally deposition be induced. This period, as with the use of nitrogenous food only, is reached but gradually; for here also, as the plasma and decomposition increase, the decomposition products are increased, and they absorb, in addition to the fat and sugar, a larger portion of the oxygen; whence it shortly happens that the decomposition is gradually so much lessened that the organ gives off no more from its constituents, when, in this respect, an equilibrium is produced; and if the supply be still further increased, deposition ensues; and, indeed, as before said, so much the sooner, as the operation of the oxygen is lessened by the presence of fat and sugar.

The necessary limits are arrived at, as in the preceding sketch, partly by the limited capability of absorption of fat and sugar, or else by circumstances which prevent their great accumulation in the blood, the fat being removed by deposition, the sugar by the urine. There is also a limit to the operation of these substances, arising from an increased affinity on the part of the oxygen to the decomposition products of the nitrogenous tissues than to the fat or to the sugar taken with the food; therefore the decomposition products and the other oxidizable constituents of the blood are always burnt or oxidized the first. Another circumstance which may occur with relation to fat and sugar may be, as above mentioned, that these substances do not consume so much motor force as the albuminous bodies; were the case otherwise, the decomposition would not be lessened by their use, since then the force required for their movement would be wanting.

It will be seen, in the course of the experiments, that the operation of the fat may be so developed, as aforesaid, that, when added to an entirely nitrogenous diet, in from one-fourth to one-fifth of the entire quantity of food necessary, it produces an equilibrium between supply and decomposition; and if from one-third to one-fourth, it renders deposition possible. If the nitrogenous food be then increased, it is consumed, because its increase produces an increase in the decomposition, even in the presence of fat. The oxygen does not combine with the fat, but with the decomposition

products of the nitrogenous organs, for which it has a greater affinity, and the fat is deposited. The motor force being supplied by the decomposition of the nitrogenous material, the deposition continues, and the decomposition being only proportional to the motor force required, with the increase of food the decomposition products after a time absorb all the oxygen, all the fat is deposited, and the decomposition itself ceases from want of oxygen, the motor force fails, and the animal again ceases to eat.

The subject of volitional movement is next considered, the animal having been hitherto supposed to be in a state of rest. The starting-point in the whole explanation lies here again in the position that in the organism no force is supplied to produce motion but one which is liberated by decomposition of the respective organs. According to the present state of our knowledge, it is impossible that the molecular force to which the organism owes its structure and composition can be directly effective as a motor force, but there must always be first a decomposition of the material of which the moving organs themselves consist; this molecular force does not forsake the matter and change into motor force, and relinquish the matter to other forces, but the reverse. The arrangement of the molecules of the matter is the operation of its molecular force; it brings and maintains the molecules in this arrangement, and to this its operation is limited. Should the matter be applied to other uses, as motor or calorific purposes, then the molecules of the organic matter must be driven by other molecular forces into another arrangement, and then a transfer into motor or calorific force may occur. If we, therefore, wish to produce any motor force in the organism, it is necessary to cause a decomposition in the material of that organ which performs the motion, and our explanation of the circumstances of motion must proceed from an explanation of the circumstances of decomposition. It is now beyond doubt that the nerves exert this influence. In consequence of their action, whether voluntary or otherwise, the decomposition of the organ is produced, and force is thereby set free, which now manifests itself in movement. We doubt not that this action of the nerves, this influence which they exert on the decomposition of the organ in the imparting of motion, consists, as it were, in a shock, which alters the arrangement of the molecules of the organ. We are of the opinion that this motion in the nerves manifests itself, among other things, in an altered grouping of those electric molecules of the nerves which we have learned from the admirable investigations of Du Bois, when the nerve is in a state of activity.

The nerve is thus a fourth factor, which operates on the decomposition of nitrogenous tissues, besides the oxygen, the plasma, and the bulk of the organ itself; but while the action of the three latter is uninterrupted, that of the nerves is temporary, subject to the influence of the will, and appears, therefore, to a certain degree, only as one increased according to circumstances and intention. Yet it is plain that the force which is hereby

liberated is used only in volitional movements; and if, therefore, the force necessary for the uninterrupted continuance of the internal movements must not fail, then the decomposition of the tissue elements, or of the elements of their nutrient supplies, must in a corresponding degree be increased.

It necessarily follows that, when voluntary movements are produced, the relations of all the above-mentioned factors must vary. When the supply of food is not sufficient to cover the tissue loss, the body being at rest, an additional loss will be incurred in consequence of voluntary movements, and a nourishment which would in the former case be sufficient to cover all loss will now be insufficient, and the point at which deposition would occur be still further removed. The capability of receiving and digesting food will be also increased, for we know that these movements accelerate the respiration, and increase the absorption of oxygen, which will cause a greater decomposition than in a state of rest.

The further consideration of this subject, and of reflex motions, is beyond the range of the present paper. The author only wishes to show how they harmonize with his explanations of nutrition.

It has been already mentioned that animal heat is undoubtedly the result of the decomposing effects of atmospheric oxygen in certain organic matter —as fat, starch, and sugar—part of which, as fat, is a constituent of the body, part, as fat and sugar, are found in the blood, as derivatives of the food. The fat, which is already a constituent of the body, and is contained in small droplets within nitrogenous cell-walls, is less easily accessible to the influence of oxygen than that distributed through the blood, and therefore the attraction of the oxygen will vary accordingly.

It is not to be supposed that heat can be developed *directly* from the decomposition of the nitrogenous tissue elements, because, if such were the case, the application of nitrogenous food and tissue elements to the production of motion would be impossible. But it does not necessarily follow that, after this primary decomposition has taken place, the residuary elements may not be in part still further decomposed by the oxygen, and from this secondary decomposition heat be derived; this is, on the contrary, certainly the case, because these substances are finally expelled as oxides. It is thus indubitable that heat is derived from the further oxidation of decomposition products of nitrogenous matters, both of the body and of the food. The relative affinity between the oxygen and the former of these is best seen in a condition of hunger.

The proportion in which the tissues are decomposed and their products still further consumed, and in which the fat of the body is also invaded, shows the degree of the affinities which are here in operation. It is in this case, however, most important to remember that they are not perfectly represented; that is, although the oxygen has a much greater affinity to the fat than to nitrogenous substances, the decomposition of these latter is

not prevented, the oxygen not combining entirely with the fat; the causes of which are evident—partly through the liability to decomposition of nitrogenous tissue elements, through the pressure and attraction of the plasma, partly because the fat is not distributed through the blood, but is contained in nitrogenous cell-walls. When, however, this is not the case, as when we feed an animal fat, so that the fat is found in the blood, nitrogenous tissue is always decomposed, a proof that even here the attraction of oxygen to it and its decomposition products is greater than even to the free fat in the blood.

The oxygen, therefore, first produces the decomposition of nitrogenous matter with the assistance of the plasma, and then, by further combination with decomposition products, develops heat. What oxygen remains above this operation, when the resistance on the part of the nitrogenous tissue is increased, combines with the free or deposited fat, and sooner with the former than the latter.

But as the resistance of the nitrogenous tissues to oxygen is dependent on the bulk of the organ and the quantity of plasma, and is diminished by the increase of this latter, it is evident that the amount of oxygen capable of uniting with the fat will depend on the bulk of the nitrogenous tissues, and principally on the amount of the plasma; for as the latter increases, the decomposition increases, decomposition products are more abundant, these absorb more oxygen, and less remains for combination with the fat. This may continue until all the oxygen is consumed by the nitrogenous elements of the tissues and food, and all the heat is developed from these decomposition products. The fat is then no longer consumed, even when it is free in the blood; it is therefore deposited. Whether sugar, in such cases, is converted into fat and deposited, we must at present leave undecided, since we cannot, as in the case of fat, speak of its general relations and attractions towards oxygen; but, from our experiments, we may here remark that in carnivora the circumstances are never such that all the sugar is either consumed, or excreted in the urine.

There is thus a condition in the nutrition of an animal when the whole of its heat is derived from its nitrogenous food, yet never from its direct oxidation in the blood, but always as a result of the decomposition of the nitrogenous tissues. There is, therefore, no "luxus consumption" or oxidation of albumen in the blood, as Frerichs and Schmidt affirm. But since this large consumption of nitrogenous tissue and food in the body of an animal, whereby all its heat is also supplied, is not necessary to its existence since the force which is thereby developed is used only for the movement of this mass of food, the heat which is thereby formed as a secondary product is much preferably produced by the use of other matters, as fat and sugar; and this excessive use of flesh is a great "luxus consumption," which can and ought to be prevented by the due use of non-nitrogenous substances.

We thus see the principles which have been deduced from the various experiments detailed more fully in the work. The question as to whether urea is or is not the sole nitrogenous product of tissue-change in carnivora lies at the foundation of all his arguments, and of all his experiments also. The dog, on which these experiments were carried on, was fed in various ways, having been first examined in a fasting condition to obtain a basis for further investigations. The dog was carefully weighed every morning, as were also his food, drink, and excrements, and his urine measured; this last he was trained to pass every morning into a glass vessel. It was then tested for urea by Liebig's method of trituration by nitrate of mercury, and for sulphuric acid by baryta, the nitrogenous contents of the food, and also of the excrements were also ascertained, and the calculation made as to the gain or loss of tissue accordingly; the amount of fat or water given off or deposited was calculated from the amount of oxygen inspired, and from the amount of animal heat liberated by the combustion of the carbon and hydrogen. The experiments were conducted with the greatest care, and deserve attentive consideration.

The first series of experiments are on the tissue-change in the fasting condition.

From October 19 to 25, the dog was kept without food, but on the 23d he drank 63 grm.[1] of water. He weighed, on Oct. 19, 33,310 grm., on Oct. 25, only 30,330 grm., he thus lost 2980 grm. He excreted 1130 c. c. of urine weighing 1186 grm., which contained 121.558 grm. of urea, equal in nitrogen to 56.73 grm.; this represents 1668 grm. of flesh, which must have been derived from his own body; besides this, he lost 1312 grm. of fat or water, or of both.

Doubtless this loss was fat only, for if it were water the material indispensably necessary for respiration and the maintenance of heat would be wanting. According to Reynault and Reiset, a dog of this weight would consume daily about 250 grm. of carbon, and 900 grm. of oxygen. If the dog had had only the carbon from the above calculated flesh, 1668 grm., it would not have amounted to 40 grm. in the 24 hours; while reckoning the remaining loss as fat, he would have 180 grm. of carbon as his supply. So with this amount of flesh he would have had only 100 grm. of oxygen daily, while the additional fat would give him 644 grm. The well-known fact that fasting animals lose their fat argues further in favour of the loss being fat, while there is no ground to suppose that the dog would give off water while as much water as he desired was at his disposal.

But the calculation of the excretion from the kidneys, skin, and lungs, show that the dog needed no more water than would be formed from the flesh and the hydrogen of the fat.

[1] In all these experiments grm. is used to signify grammes, the French decimal weight of 15½ grs. nearly.

The following table gives us the calculation :—

INGESTA.					
FOOD.	Water.	N.	C.	H.	O.
1668 grm. of his own flesh . .	1266.0	56.73	208.8	28.86	85.9
1312 fat tissue with 1128.3 of fat	183.7	...	891.3	124.10	112.8
Water drunk	63.0				
	1512.7	56.73	1100.1	152.96	198.7
EGESTA.					
1130 c. m. urine . . .	1048.0	56.73	24.4	8.20	32.6
There remains for lungs and skin	464.7	...	1075.7	144.76	166.1

The 144.76 H. are equal to 1302.8 water, therefore he excreted by the lungs and skin 1767.5 water, and 1075.7 grm. of carbon.

In order to prove the correctness of our calculation founded on this consumption of nitrogen we use the computation of the relative loss by the skin and lungs, as a proof thus—

The dog consumed from his body	2980 grm.
" " water	63 "
	3043 "
He evacuated 1130 c. c. of urine	1186 "
There remain for skin and lungs	1857 "
Our reckoning above gives	1851 "

The amount of animal heat generated gives us another proof; for every 1 grm. of carbon 8086 units, and for every 1 grm. of hydrogen 34,462 units of heat are generated according to the researches of Von Favre and Silbermann; but as the 166.1 grm. of oxygen would combine with 20.7 grm. of the hydrogen, there would be left 124.06 grm. of hydrogen and 1075.7 grm. of carbon to be oxidized; these would yield 12,976,466 units of heat, or for each 24 hours 2,162,744 units.

A second experiment of three days yields similar results. A third of seven days immediately following a seven days very high feeding with flesh and fat agrees in general with the others, with some variations arising from the different condition of the dog. A fourth and fifth relate to single days of fasting, agreeing closely with one another and with the general results.

The second series, containing fourteen experiments, relate to feeding on flesh only.

The flesh was fresh lean beef very carefully freed from fat, cartilage, bone, &c.; this contained, as shown by numerous analyses, only one per cent. of fat.

The first seven experiments cover nineteen consecutive days, in which the dog was fed for seven days on 1800 grm. of flesh, which was reduced every third day until it reached 176 grm. only, as shown in the following table:—

Table of Flesh Feeding.

DATE.	Weight, grm.	Food, grm.	Water, cm.	Urine, cm. and grm.		Urea, grm.	Feces, grm.
		Flesh.		Cub cm.	Grm.		
Nov. 9	34410	1800	213	1751	1798	86.850	
10	34100	1800	5	1428	1486	118.524	
11	33990	1800	310	1599	1663	131.756	17.6
12	34020	1800	137	1313	1372	120.796	
13	34200	1800	340	1401	1465	131.694	16.2
14	34460	1800	18	1185	1244	123.714	
15	34610	1800	120	1213	1272	123.626	
16	34850	12600	1143	9890	10300	847.059	
16	34850	1500	10	990	1039	108.50	163.9
17	34810	1500	10	1003	1055	108.12	
18	34910	3000	20	1993	2094	216.62	163.9
18	34910	1200	...	830	872	89.81	
19	34910	1200	...	809	851	87.37	
20	34930	2400	...	1639	1723	177.18	
20	34930	900	...	571	705	69.784	
21	34780	900	...	615	647	65.805	
22	34710	1800	...	1186	1352	135.589	
22	34710	600	...	465	489	49.848	
23	34490	600	...	450	474	48.150	
24	34320	1200	...	915	963	97.998	
24	34320	300	...	320	337	32.640	
25	33970	300	...	317	333	32.651	
26	33660	600	...	637	670	65.291	
26	33660	176	...	274	288	27.400	
27	33270	176	...	258	271	26.212	
28	32850	352	...	532	559	53.612	

December 1, the dog fasting, he discharged 24,213 grm. of feces.
To every 100 grm. of flesh fed there correspond nearly 1.85 grm. of feces.

In examining the first experiment of seven days there were 33.8 grm. of feces remaining in the dog from his previous food, and as the quantity of meat fed would yield 233 grm. of feces, the dog gained only 241 grm.

The 12,600 grm. of flesh contained 428.4 nitrogen. The 847.059 grm. of urea contained 395.32 grm. N. The 233 grm. feces were composed of 44.4 per cent. of solids, or in the whole of 103.45 grm. of solids and 129.55

of water. The solids contained 6.5 per cent. of nitrogen. The urea and feces contained, therefore, 402.04 grm. N., showing a gain of 26.36 N., equal to 775 grm. of flesh. These were deposited; but as the dog gained only 241 grm. he must have given off 534 grm. of fat or water. It was doubtless water, because the amount of carbon and hydrogen in the 1800 grm. of flesh were sufficient for the necessities of respiration, and because for the first four days he lost weight and the urine was very watery.

The following calculation is appended :—

INGESTA.					
Food.	Water.	N.	C.	H.	O.
11,825 grm. of flesh . .	8975.17	402.05	1480.49	204.57	608.99
Water drunk	1143				
Water given off . . .	534				
	10652.17				
EGESTA.					
9890 c. c. urine . . .	9323.00	395.23	169.41	54.41	226.91
233 grm. feces	129.55	6.72	44.94	6.69	13.22
	9452.55	401.95	214.35	63.10	240.13
There remain for skin and lungs	1199.62	...	1266.14	141.47	368.86
141.47 H. = ...	1273.23				
	2472.85				

The proof—

The dog consumed in flesh	12,600 grm.
" " water	1,143 "
	13.743 "
He excreted in 9890 c. c. urine	10,300 "
Feces	34 "
Increase in weight	440 "
	10,774 "
There remain for skin and lungs	2,969 "
Our reckoning gives	2,977 "

From this we learn that the 1800 grm. of flesh were sufficient to nourish the dog in all respects; that at first, when the dog had been previously fed on bread, he was poor in nitrogenous elements, and at first he lost weight by exchanging other matters which he gave off for flesh which he deposited. The respiratory requirements and the heat were not fully met by the above calculation; the flesh consumed would give only 1,932,043 units of heat, while we have seen that in the fasting condition 2,200,000 were about the minimum, wherefore he must have lost, during the first day, about 80 grm.

of fat, depositing 608 grm. of flesh according to the difference between the nitrogen taken in the food and excreted in the urea. A great excretion of water took place on the first three days, in which the dog continually lost in weight. On the first day he must have lost 838 grm. of water, the body having been very full of water from the previous feeding with bread.

We see also that the three chief ingredients of the body, the nitrogenous tissues, the fat, and the water, bear certain proportional relations to one another, and to the alterations in the weight of the body.

The calculations for the rest of this series can be easily made from the accompanying table; they show no variation from the general principles laid down. The remaining seven experiments under this head relate to large quantities of flesh food, the results, however, are similar in all respects to the above.

The third series of nineteen experiments were made with feeding flesh and fat, and fat alone; the flesh was prepared as before; the fat was pure melted butter.

In the first experiment the dog was fed 150 grm. flesh, and 250 grm. fat for ten days, in which he lost only 161 grm., but as he gave off 830.3 grm. nitrogenous tissue he must have deposited 669.3 grm. of fat or water, or 575.6 grm. fat-tissue with 93.7 water.

In a thirty-one days' feeding with 500 grm. flesh and 250 fat, the dog gained 4543 grm., composed of 1794 grm. flesh, 2364.14 fat-tissue, and 384.86 water.

Several experiments follow of variable quantities of flesh combined with 250 and 150 grm. of fat; thus, 1000, 1500, 1800, 2000 grm. of flesh with 250 grm. fat, and 1500, 1000, 700, and 400 grm. of flesh with 150 grm. fat; the first set show that the dog deposited flesh and fat, and continually gave off water; in the second set, although the food continually diminished in quantity, the weight of the body remained nearly the same, the dog continually giving off his nitrogenous elements, the N. in the urea being always more than that contained in the food, he therefore deposited water. But the action of the fat in preserving the nitrogenous tissues is shown in the fact, that, while the food sank from 1500, as above, to 400 grm., the nitrogenous decomposition increased only from 8 to 23, 77, and 81; the effects of the same quantity of fat were seen most strongly when combined with the smallest quantity of food, because the larger quantity of food would of itself cause an increased decomposition; with this would arise an increase of decomposition products, which, by absorbing oxygen, would render a deposition of fat necessary; but as the amount of the food was lessened there was sufficient oxygen not only for all the decomposition products and the fat, but also for a certain amount of the constituents of the body. When the fat began to be insufficient to render a deposit of flesh or fat possible the dog began to drink water, which he had before refused.

In three days' feeding with 500 grm. flesh and 200 grm. fat per day, the

dog gained 304 grm., the N. of the flesh, and of the urea and feces, equalled one another, the deposit would be 261 fat, 48 water.

In three days' feeding with 500 grm. flesh, and 300 grm. fat, he gained 354 grm., as the N. excreted was less than that contained in the food the gain was 132 grm. flesh, 190.92 fat, and 31.08 water.

Four days' feeding with 500 grm. flesh alone showed a loss of 754 grm., which, from the excess of N. excreted, should be divided into 88 grm. flesh, 572.76 grm. fat, and 93.42 water.

Three days' feeding with 1500 grm. flesh and 350 fat caused a gain of 962 grm., of which 159 grm. were flesh, 690.6 fat, and 112.4 water.

Two days' feeding with 330 and 350 grm. fat only showed a loss of 100 grm., but as the N. excreted was considerable, while none was taken in the food, the calculation would be loss of flesh from the body 410 grm., deposit of fat 266.6, of water 43.4 grm., the loss of nitrogenous tissue exceeding the loss of total weight by 310 grm.

The fourth division comprises feeding with flesh and sugar, and sugar only, and contains eleven experiments; the sugar used was grape and milk sugar.

The first experiment is shown in the following table:—

DATE.	Weight.	Flesh.	Sugar.	Water.	Urine.		Urea.	Feces.
					C. C.	Grm.		
Nov. 16	28670	150	100	415	190	197	13.680	201.8
17	28610	150	150	95	185	193	13.690	...
18	28500	150	250	107	156	164	13.104	...
19	28520	150	350	185	148	156	13.616	141.4
20	28520	150	350	200	240	248	13.440	...
21	28620	150	350	154	260	268	13.000	103.6
22	28480	900	1550	1216	1179	1228	80.530	446.8

Calculating the relative proportions of feces the dog lost 117 grm. He excreted N. equal to 444 grm. flesh more than he received, and must have deposited water to the amount of 327 grm. The feces consisted of 271.39 water and 102.41 solids, but contained no sugar.

In a second experiment the flesh and sugar were respectively 750 and 150, 500 and 200, 300 and 250, 300 and 250, 150 and 300, 200 and 300, the first number being flesh, the second sugar; the dog remained of the same gross weight, but, calculating the feces derived from the food and still retained, he lost 172 grm. He excreted N. equal to 779 grm. flesh more than he received, but, as his weight was only 172 grm. less, he must have deposited 607 grm. of water. It could not have been fat, because the carbon necessary for excretion by the lungs and skin would have been deficient.

With large quantities of flesh and sugar he gained in weight, thus with 2000 grm. flesh, and 200 of grape sugar, he gained 193 grm.; but, as he deposited N. equal to 320 grm. of flesh, he must have given off 127 grm.

water. With 2000 grm. flesh, and 100, 200, and 200 of milk sugar, he gained 546 grm. He deposited 600 grm. flesh, and gave off 54 grm. water.

A series of five experiments give the following results:—

Fed on		The consumption was		
500 grm. flesh.		564 flesh.	161 fat.	
500 flesh.	250 fat.	557 "	175 "	
500 "	100 sugar.	537 "	151 "	100 sugar.
500 "	200 "	500 "	76 "	200 "
500 "	300 "	466 "	34 "	300 "

From this we see the nitrogenous decomposition was greatest with flesh alone; that fat reduced this less than sugar; that the influence of the sugar was proportional to its quantity; that the fat besides reducing the nitrogenous decomposition caused a saving of the fat of the body, although 14 grm. more of the fat fed were consumed than previously of the body fat; that the sugar took the place of the body fat and of the fat in the food, yet 300 grm. of sugar were not sufficient to prevent the consumption of some of the body fat; 100 grm. sugar saved 20 grm. body fat, and 24 grm. of the fat of the food; 200 sugar, 85 and 99; and 300 sugar, 127 and 144 of the body fat and food fat respectively.

It follows that fat and sugar have an inverse influence on nitrogenous decomposition and the respiratory process. The fat, from containing two and a half times as much carbon and hydrogen as sugar, is more effective in the respiratory process, while sugar is more powerful in reducing nitrogenous decomposition. The fat and sugar both act by absorbing oxygen, and so reducing its influence. According to their composition the fat should be more effective than the sugar; the contrary, however, is the case, because the sugar more readily combines with the oxygen, absorbing it directly, while the fat has to take part in the general tissue decomposition previously. The action of the sugar is more direct and immediate, and lessens the nitrogenous decomposition more than fat from not requiring so much motor force.

In one experiment of two days, in which the dog was fed with 370 and 500 grm. of grape sugar, he lost 368 grm. He excreted N. equal to 494 grm. of flesh, and therefore deposited 126 grm. water. In comparing this with an experiment in which he was fed on fat only, being in both cases of the same weight and in equally good condition, we observe that in this case he consumed, daily, 247 grm. flesh and 430 grm. sugar; in the other, 196.5 grm. flesh and 196.8 grm. fat. Thus 100 grm. sugar reduced the nitrogenous decomposition as much as 100 grm. of fat, or, considering their respective proportions of carbon and hydrogen, two and a half times more.

The next division treats of feeding on flesh and starch, and starch alone.

The starch was mixed with fat and salt into a kind of cake, which was baked. This the dog would eat only in small quantities, and for a short time; to have given it in larger quantities it would have been necessary to have crammed him.

The first experiment was continued for eleven days, in which the same of flesh, 176 grm., was given daily; the starch and fat varying from 100 to 364 for starch, and from 9.1 to 29.6 for fat. The total loss in weight, after calculating the feces, was 33 grm. He excreted nitrogen in excess, equal to 484 grm. flesh, and therefore deposited 451 grm. of water. It is evident that 176 grm. flesh, with any quantity of starch, was not sufficient to cover the nitrogenous decomposition, the average amount of which was 206 grm. daily; although the starch had considerable influence in reducing it, as may be seen by comparing the loss when 176 grm. flesh alone were used. The quantity of starch, however, exerts some, though only a slight, influence on it, for the amount of urea was less when the greatest quantity of starch was fed, and the reverse. With 150 grm. starch 66.5 grm. flesh were given off, with 364 grm. starch only 23 grm. flesh; so with 150 grm. starch 96 grm. of body fat were given off, with 364 grm. starch only 18.

In a second experiment of eleven days the flesh was reduced from 700 to 150 grm., while the starch was increased from 150 to 430 grm., and the fat from 11.5 to 20 grm. The dog, however, lost 335 grm. in weight; he excreted nitrogen in excess, equal to 1,309 grm. of flesh, and therefore must have deposited 974 grm. water. In a five days' feeding, with 2,000 grm. flesh daily, and 200 grm. of starch for two days and 300 for three days, with about 5 grm. of fat daily, he gained in weight 1,287 grm., of which 1,041 were flesh and 246 water. A five days' feeding with 500 grm. flesh, 250 fat, and 250 sugar, resulted in a gain of 639 grm.; but as he excreted nitrogen in excess, equal to 295 grm. flesh, he must have deposited 934 of fat or water, or both—thus, 803.24 fat, and 136.76 water.

When fed for three days with 100, 200, and 360 grm. of starch, with 22, 23, and 40 of fat, he lost 90 grm., and gave off nitrogen equal to 527 grm. of flesh, and therefore deposited 437 grm. water. Two days' feeding with 450 grm. starch and 19.7 of fat resulted in the weight of the dog remaining the same; but as he excreted 334 grm. of flesh in nitrogen of the urea, he must have deposited 334 of water.

The next division relates to feeding with bread only, with two experiments. The first, of six days' feeding with from 678.8 to 999.7 grm. of bread, which were again reduced to 730 grm., showed a loss of 296 grm., with an excessive excretion of nitrogen, equal to 924 grm. flesh, with consequent deposit of 628 grm. water.

In forty-one days' feeding with bread, in very variable quantities, just what he chose to eat, from 1,091 to 263 grm., the dog lost 531 grm.; he excreted nitrogen in excess, equal to 3,717 grm. flesh, and consequently deposited 3,186 grm. water.

The seventh and last series of nine experiments relate to feeding on flesh and gelatin, fat and gelatin, and gelatin alone.

The gelatin used was the fine French glue, in thin, clear yellow plates; this was dried in an air-bath, and then weighed; then covered with hot

water and allowed to stand all night, and again weighed, when the contained water was estimated. The dog ate this jelly at first in small quantities, and very readily when mixed with flesh. The quantity of flesh fed was about equal to the nitrogenous decomposition in the fasting condition. The results of the first experiment are shown in the following table:—

DATE.	Weight.	Flesh.	Glue.	Water.	Urine.		Urea.	Feces.
May 1	40500	1100	100	160	1084	1133	110.57	...
2	40400	1200	100	93	983	1032	112.06	...
3	40430	800	200	257	957	1005	112.46	...
4	40380	400	300	288	895	937	110.98	...
5	40110	400	300	543	916	960	100.92	...
6	40000	3900	1000	1341	4835	5067	555.99	...

Calculating the feces, the loss in weight is 590 grm. He received in flesh and glue 273.1 nitrogen, and excreted in the urea and retained feces (90 grm.) 262.0 nitrogen, being 11.02 grm. less nitrogen than he received; these are equal to 324 grm. of flesh, which he deposited; but as he was 390 grm. lighter, he must have given off 914 grm. water and fat.

On the first day the nitrogen received and given off was equal; there was also some fat given off to support animal heat, and some water.

On the second day 76 grm. flesh were deposited, and fat was given off as before.

On the third day 87 grm. flesh were deposited, but he lost 131 grm. in weight; he must, therefore, have given off fat and water.

On the fourth and fifth days he deposited 100 grm. of flesh in each, but gave off on the fourth day less fat and more water, on the fifth more fat and less water.

It is evident from the results of this experiment that the gelatin lessens the nitrogenous decomposition, and the necessity for nitrogenous, *i. e.* flesh, diet. We thus see that the use of 400 grm. flesh, which had previously caused no deposit of flesh, even with the addition of fat, when combined with 300 grm. of glue occasioned a considerable flesh deposit, although at the same time fat was given off; and this is rather remarkable, because its conversion into respiratory material cannot account for it, since it contains so much oxygen that it can yield but little carbon and hydrogen for further combustion. The feeding of fat, as we have seen, protects only a small amount of the nitrogenous food from decomposition, and thus promotes its deposit. Glue must have a special action, and it is manifest that its quantity is very important, for a thrice larger quantity of glue, with a thrice less quantity of flesh, produced a considerable deposit, which did not occur when the proportions of flesh and glue were reversed. We must, therefore, consider that the glue is assimilated, and performed a part of that work for

which the albumen of the food would have been otherwise employed, so that a portion of this latter could be deposited.

In the second experiment, of three days' feeding with 200 grm. of flesh and 200 of glue daily, the total loss was 1,405 grm.—735 grm. flesh, 330 fat, and 341 water.

A third experiment, of two days' feeding with 200 grm. flesh and 300 glue, gave as the loss 353 grm.—154 flesh, 190 fat, and 9 water.

This last experiment presents one point of great interest; for as we have just seen that when 200 grm. of flesh and 200 of glue were fed, so much nitrogen was excreted as to require a decomposition of 245 grm. of the flesh of the body, by the addition of 100 grm. of glue this was covered up to 77 grm. This agrees with the former experiments, and confirms our main proposition that all the nitrogen, or the greatest part of it, contained in the food is evacuated in the form of urea. With 200 grm. of flesh and 200 of glue 245 grm. of body flesh were required, with 200 grm. flesh and 300 glue only 77 grm.; 100 grm. glue are therefore equal to 168 grm. of flesh.

Three days' feeding with 500 grm. flesh and 200 of glue were followed by a gain of 316 grm., of which 134 were flesh and 182 water. When we compute the amount of heat formed, we find it necessary to reckon some fat as having been given off. The daily consumption would then be 455 grm. flesh, 20 glue, and 108 fat.

With 2,000 grm. flesh and 200 glue, fed daily for three days, the gain was 562 grm. Computing the nitrogen, there were 652 grm. flesh deposited, and consequently 90 grm. of water or fat given off. We here see that a large increase of flesh food caused a great increase in the decomposition; but we have seen previously that when fed on 2,000 grm. flesh alone he decomposed the whole, with 2,000 grm. flesh and 250 fat he deposited only 118 grm. Now, with the same quantity of flesh and 200 glue he deposited daily 217 grm. That this was not accomplished by an attraction of the glue directly for the oxygen is shown by the abundance of the decomposition products, and the amount of heat developed is considerably more than what was taken as the minimum in the fasting condition.

Three days' feeding with 200 grm. glue alone daily, gave a loss of 624 grm.—249 flesh, 322.5 fat, and 52.5 water; a loss of only 83 grm. flesh daily, an effect not produced by 340 grm. of fat.

Three days' feeding with 200 grm. glue and 200 fat gave a loss of only 94 grm., while 158 grm. of flesh were excreted in the nitrogen of the urea; there must, therefore, have been a deposit of 55 grm. fat, and 9 water.

Feeding for three days with 50 grm. of glue and 200 of fat gave a loss of 561 grm., with an excretion of nitrogen in excess equal to 593 grm. of flesh; this was derived from the body; but 32 fat-tissue were deposited, consisting of 27.52 fat and 4.48 water.

Three days' feeding with 100 grm. glue and 200 fat gave a loss of 849

grm.—310 grm. of flesh, and 549 grm. most probably of water, from the amount of fat in the food.

If we compare the last three experiments, we shall see that with the use of 50 grm. glue, 200 grm. flesh were given off from the body. With 100 grm. glue fed, 100 grm. flesh were given off; and with 200 grm. glue, only 50 grm. flesh were lost; thus there is a direct proportion between them; but as the flesh contains three times more water than the glue, one part of flesh operates equally to four parts of glue. If, therefore, the dog had consumed 250 grm. of glue, no further loss of flesh would have been sustained. The reason why gelatin proves an insufficient nourishment is that such large quantities of it are required to replace the albumen—at least four times as much glue as dried flesh, or as much dry glue as moist flesh. The animals, consequently, will not consume it. The reason why, when animals have been previously fed with glue, they have died, is twofold—first, they could not eat enough of it to cover their nitrogenous loss; and secondly, because, after the consumption of all their fat, they had no longer the means of producing animal heat.

The glue used in these experiments may be very much better than ordinary glue. This French glue, apparently, contains more chondrin, and it may perhaps contain some albumen; this seems to be the case, from its containing less nitrogen and more sulphur than common glue.

The results of these experiments may be thus briefly stated :—

In the fasting condition an animal continually loses flesh and fat, as urea, carbonic acid, and water; and this loss is in proportion to his bulk.

In feeding with flesh alone, an animal requires from $\frac{1}{20}$ to $\frac{1}{25}$ of his weight daily to maintain his condition; and as soon as he begins to deposit flesh he will consequently require his food to be proportionally increased; and this may continue until the animal has reached his maximum, and then he ceases for awhile to eat; the increase in the food causing a retention of his fat.

In feeding with flesh and fat, and with fat alone, we learn that fat is not sufficient to prevent nitrogenous decomposition; nor yet to prevent its increase when the food is increased. Moreover, the fat itself causes an increase in the nitrogenous decomposition; but it lessens the relative amount, *i. e.* less nitrogenous matter is decomposed if fat be used, than would be if it were not: thus $\frac{1}{3}$ to $\frac{1}{4}$ of the nitrogenous food will, if combined with fat, be sufficient to keep an animal in condition, to what would be sufficient without fat, and the administration of fat in the food not only saves the fat in the body, but causes more to be deposited. Sugar has a similar effect to fat, only more powerful; it cannot prevent the nitrogenous decomposition, nor its increase under increased feeding, nor the influence of the increased bulk of the organs. It acts only relatively, and by its use induces an earlier deposition of the flesh and fat contained in the food than would occur without it. As carnivora cannot be induced to take enough

sugar to supply all their wants in internal motion and heat from nitrogenous decomposition, the sugar can never be deposited as fat; and, indeed, in any case this does not seem probable.

The effects of starch are similar to those of sugar, and in carnivora bread does not afford a full force-sustaining nourishment.

A more important character must be assigned to gelatin than has been previously attributed to it. It possesses the power of lessening the consumption of albumen—four parts of glue being equal to one of albumen. It cannot, however, be taken in quantity sufficient to cover the whole of the albuminous consumption. From these facts Liebig's division of food into plastic and respiratory are considerably strengthened. As, however, all depends on the truth of the proposition that all the nitrogen is excreted as urea, and that this is derived from tissue change only, in experimenting for this purpose this is the first point to be ascertained; this can easily be done by varying the weight of food and observing the variations in the amount of urea.

With regard to herbivora there are doubtless many variations, among others the formation of fat from carbo-hydrates.

The only important thing, however, in all these inquiries is to ascertain the processes which occur in man. The first step to be ascertained is in what condition he excretes nitrogen in urea only, and in what other form, if any. Experiment alone can determine this. One thing, however, is certain, that the so-called "normal diets," and the "equalizations of food," which have been hitherto founded on general rules, are of no use at all, as affording any guide in any particular individual case. Each one is a law only to himself, and varying circumstances will cause such variations in every individual that a special calculation will be required to meet them. The stronger the man the more food will he require to maintain his strength than a weaker man, the exercise of both being equal.

The bulk of the organ, the amount of the plasma, that of the disposable oxygen, and the energy of the nerves constitute the four great factors in the acts of decomposition; these are always equal to one another, or are striving for an equality, in which the force needed for motion and the animal heat are liberated.

In an appendix are some remarks on the urine and feces, and some analytical tables.

In presenting this abstract of Bischoff and Voit's treatise, we have departed from our original intention, and we trust not unacceptably to the reader. The importance of the subject, the small probability of such a treatise being translated, and the fact that it is, in its original, out of the reading of a large number of the profession, are our reasons for this change. The doctrines herein taught, although we cannot agree with all his conclusions, yet, taken as a whole, give a much clearer insight into many of the conditions of diseases from malnutrition in their earlier stages than we

previously had. The rapidity with which the blood and tissues exchange their solids for water, coupled with the fact mentioned by Ricord on one side, that in cases of enlarged lymphatic glands the blood is always watery; and on the other side with the notorious connection between lymphatic glandular enlargements and phthisis or scrofula, advance our knowledge one step, if only a short one, in the comprehension of this subject. Thus, we see a child in apparently good condition, *i. e.* plump, and yet here are these incipient scrofulous developments—the condition of the child becomes so much more intelligible, and the indications of treatment so much the better grounded. Nor can it be too strongly impressed on the mind of the parents of every such child that dietetics must be the chief means to be depended upon to protect the child from further developments. While with the profession the more minute the study into the earliest symptoms, or the predisposing causes of this scourge, the greater will be the possibility of averting its destructive progress. The profession has been too long engaged about the means of its *cure*, to pay much attention to those of its *prevention*, or of its *arrest*. One specific is vaunted after another, to receive the same summary dismissal; and thus the investigation into principles has been neglected, from which alone we can with reasonable hope expect success.

The view promulgated by Liebig, that the alkaline carbonates contained in the blood are the carriers of carbonic acid out of the system to the lungs, where it becomes disengaged, and the opinion that the globules are the main carriers of oxygen into the system, have received strong confirmation from the researches of M. Fernet; he found also that the absorption of oxygen by the serum was in inverse proportion to the amount of salines present. Consequently, where the salines are in excess, and the globules deficient, a very large deficiency of oxygen in the system would so reduce one of the factors of tissue change—to say nothing of a second, the nerve force—that the whole internal workings would be deranged, the assimilating organs would have no material with which to do their work, the excretory organs would be overtaxed, the nitrogenous decomposition would sink very low, and consequently the need of supply would cease, effete matter would be long retained in the tissues, the result of this cessation of tissue change, and a faulty structure would result, which will be only ready to decay: the frequent complication of anæmia and chlorosis with phthisis, and the great preventive of, and remedy for, this disease, *fresh air*, and increased respiration of oxygen, combined with a nitrogenous or blood-corpuscle making diet, witness to the correctness of these views, for even when the fat "cod-liver oil" is beneficial, the appetite is increased and the powers of assimilation strengthened. But we have need of a much enlarged conception of the minutiæ to make our views practically applicable to the larger number of cases, and an acquaintance with nutrition in health must precede that of nutrition in disease.

Another point against which we cannot too strongly urge, is the "doctrine of averages," and its twin sister, the "numerical method." In nature there never was, nor is, nor ever will be such an anomaly as an average. Everything is the absolute and certain result of fixed and definite causes. Alter these in any way, even to the least degree, and the results vary *accordingly*, and in a *fixed and certain proportion*. She knows no "medium;" she knows nothing but a unit; and this unit is a combination of facts, varying in each, and therefore originating results varying correspondingly—experimentation therefore, and the accumulation of facts, can alone furnish us with the key to her enigmas—and each fact is valuable, just in proportion as *all* its conditions are *accurately* ascertained, and in that proportion only; and in collecting these facts we should be careful not to allow "preconceived ideas" to become "fixed ideas." The former are necessary, indispensable; we can do nothing without them; we should only know how to abandon them when they are no longer right. The preconceived idea is always interrogative; it addresses the question to nature, and calmly awaits the answer; ceasing to question when this is received, and adopting the fact, whether opposed to, or in accordance with itself, with the same readiness (Bernard).

That the carbon and hydrogen present exert a powerful influence on the results of nitrogenous decomposition cannot for a moment be doubted; the power which we possess of varying the amount of urea and uric acid, and of producing hippuric acid, evidence this; and, also, that in the decomposition all the elements are reduced to the nascent form.

In conclusion we may remark, that in framing a dietary, especially in convalescence and in health, no difficulty will be found when these principles are borne in mind, and the albuminous foods most readily convertible into albuminose, combined with such proportions of fat, sugar, and starch as the condition of the assimilating organs can appropriate without subsequent ill effects; and in such quantities of each that the excess, if any, be slightly on the nitrogenous side of the scale, will be generally the most advantageous, only remembering that the fat cannot be too free from rancidity, nor the sugar too pure, and especially should this be remembered in the feeding of children; while in all the use of gelatinous food should be but sparing.

And while the use of fresh lean meat cannot be too strongly inculcated, an abundance of pure fresh air is of no less importance; for out of door exercise imparts an energy to the system often unknown before, and unattainable by any other means; the more rapid the tissue-change, provided its replacement correspond, the less effete matter will be in the system, the more vigorous will be the frame, and the better able to withstand the inroads of disease.

NOTE.—In my last article, on page 356, in the enumeration of the elements, read S for I, and in line fifteen from bottom omit "may undergo decomposition in the system, or." It will thus read: "it may give rise to decompositions," &c. &c. Elementary bodies cannot be decomposed.

ART. VI.—*Some Account of Diphtheritis, as it occurred on the Watershed between the Tallahatchie and Mississippi Rivers.* By LEA Z. WILLIAMSON, M. D., Sardis, Mississippi.

DIPHTHERITIS occurred in the vicinity of Sardis, Mississippi, in 1859, and as this affection is now attracting much attention, I will endeavour to present an account of the symptoms which it presented, and the treatment which I found most beneficial, with such other information as may tend to throw light on the subject.

Symptoms.—Preliminary symptoms usually preceded the attack in adults, sufficiently definite to apprise an intelligent person of his danger. These were a dull aching of the bones, lassitude, headache, great mental depression and drowsiness. Children are emphatically the subjects of diphtheritis, and these initiatory signs were rarely observed in them. More commonly the child awakens in the morning, complaining of sore throat and stiffness of the cervical muscles; he seems very sleepy, insists on being let alone, and lies with his hands folded under his head. He has some fever, little or no appetite, and inspection reveals redness of one or both fauces, and sometimes of the uvula, and tumefaction of one or both tonsils. Perhaps the membrane has already formed on some of these parts, or does so in a few hours, sometimes it does not form until the third day. Externally there is swelling of the submaxillary and cervical glands, and the degree of this is a fair and correct exponent of the internal injury. Of fifty-eight cases, the left side was first affected in forty-four; in eleven, only one side was implicated. The exudation commences in small, irregularly whitish or ash-coloured patches, sometimes confined to a part of the fauces, or scattered here and there over their whole extent. If these patches coalesce, the whole mucous surface is concealed by the false membrane.

Occasionally the exudation appears first on the uvula. When the surrounding surface is of a deep red, and the membrane of whitish colour, the fever is sthenic; when the surface is a dark livid or claret, and the membrane of a yellowish colour, the fever is typhoid; and when the latter condition succeeds the first, the prognosis is unfavourable. Between these two conditions, however, it must be remembered there are various grades, wherein the characteristic symptoms are more or less mingled, and modified. We have not observed that constitution has any determining effect as regards the character of the fever. In the majority of cases the fever was asthenic; whilst in some of the very worst cases, as regards the throat, there was scarcely any fever perceptible. The membrane begins to be removed soon after it is completed, either in strips, or by softening and mixing with the fluids of the mouth. They are sometimes removed, and renewed several times; each time becoming thinner and whiter, and finally disappearing. This process lasts from five to ten days; the longer, the more unfavourable

the prognosis: few recover that go to the tenth day. If it continue this long the fetid sanies from the nostrils, and the lancinating pain along the Eustachian tubes, when fluids are swallowed, indicate the extension of the inflammation into these passages, and there are reasonable apprehensions of the invasion of the larynx and trachea, which is the chief danger of the disease, and which will almost certainly prove fatal.

When the disease has advanced this far, the front of the neck, the parotid glands, and the face are greatly swollen; the mouth cannot be opened without the most excruciating pain; the voice, although the tongue is not involved, is changed into a hoarse whisper; the swallowing of fluids, even, is torturing. The pulse is feeble and fluttering; the respiration is hurried and catching; the indentation of the intercostal muscles from atmospheric pressure shows a lack of oxygen in the lungs, for the relief of which the diaphragm and pectoral muscles are brought into full play. The patient is restless, tossing from side to side; implores the assistance of the bystanders, or a release from the agonies of suffocation; finally seeks a semi-reclining posture, and dies by apnœa. The obstinate constipation, so often present in the beginning, is exchanged for diarrhœa in the later stages—the stools having a very offensive but not a cadaverous odour. Hæmaturia, difficult micturition, and suppression of urine are also common at this time. Albuminuria is detected by the usual tests in the severe cases; but cannot be considered a constant complication. In a few cases the serous effusion of the areolar tissue of the face, neck, and chest was so great as nearly to conceal the eye, and entirely incapacitate the patient for wearing his own clothes. One case had a diphtheritic membrane, formed on an excoriated surface of left arm, which was very tenacious, and as tardy of being removed by the same remedies as that of the throat; which could not have come from a merely local affection.

The system is evidently under some poisonous influence, which has probably much to do with the fever of diphtheritis.

The *prognosis* was favourable in ordinary constitutions, if early treated. All the severe cases that were not treated till after the second or third day, died. All died that had a descent of the membrane into the larynx, with one exception. Of 58 cases, 1 was over 40, 5 over 30, 9 past 20, 16 over 14 years old; the other 42 had not reached the age of puberty: 40 were under 10, and 20 of these between the ages of 4 and 6 years; the youngest was only 19 months old; no membrane formed in this case, though there was much inflammation and swelling. One-third more females than males suffered. Colour confers no immunity. 4 whites and 3 blacks died: one, 30; two, 8; one, 6; two, 5; and one 4 years old. One died on the eighteenth, one on the tenth, one on the ninth, one on the eighth, one on the seventh, one on the sixth, one on the third day.

Etiology.—Diphtheritis appeared here on a high, level water-shed, between the Tallahatchie and Mississippi Rivers. On each side are broad, unculti-

vated valleys, of matchless fertility, where grows vegetation of the richest and rankest character, which, by the overflow going off in May and June, is left exposed and reeking in the sun. Superadded to this are numerous lakes, marshes, and sloughs, which are supposed to make this region notorious for intermittent and remittent fevers. This year (1859) the summer fever commenced early in June, and prevailed about as usual until August. The season was very dry, there having been no general rains since early in May. The thermometer ranged from 86° to 96° Fahr. In the last week of July there were copious rains, with frequent showers throughout August and September. With the rains came a decided change in the temperature, the thermometer ranging from 69° to 82°. The first cases occurred August 5th; a week later half a dozen families were attacked almost simultaneously, without having had any communication with the first cases. It continued to travel in a definite direction along the eastern border of these table-lands, confined to very narrow limits, from which it never once deviated. Remittent bilious fever, the only disease from which the inhabitants usually suffer during the summer season, and which had been prevailing to its usual extent, seemed now merged into the prevailing epidemic; after the appearance of diphtheritis not one case of fever was seen in the epidemic region, where scores are wont to occur. A few weeks later diphtheritis appeared on the western border of this ridge (diphtheritis never reached its centre), fronting the Mississippi bottom, differing in no respect from that already described. On this basis it is a fair inference that in this epidemic malaria and diphtheritis were in some way connected. The epidemic began to abate in September; there were fewer attacks, and those of a milder form. No rain fell after 22d September, until 17th November. The weather was uniform, and warm for the season; this had a salutary effect. Patients were always worse during wet "spells," or when nights and mornings were very cool. Frequently those that had recovered, relapsed, from exposure to a cold, damp atmosphere. Diphtheritis, being a disease heretofore unheard of in this section, the people were terrified with stories of contagion, for which there was barely the remotest evidence.

Diagnosis.—Diphtheritis has been confounded with scarlet fever, black tongue, mumps, croup, ulcerated and malignant sore throat. It wants the excavated surface of ulceration of the last named disease; when, however, the false membrane has been removed, and renewed several times, some excavation will be observed.

Treatment.—I commenced this generally with purgatives, to relieve the constipation. Where there is much fever, a hot surface and clay-coloured stools, good results uniformly follow the administration of calomel in broken doses, followed by a saline cathartic. Most cases thus treated exhibit some improvement on the second or third day. Mercury is preferred as a stimulant to the secretions, and as an antiplastic to the blood. Emetics are only useful for expelling the false membrane from the larynx in the last stages,

thereby preventing suffocation. Iodide of potassium was given as an antiplastic, also the chlorate of potash for the same end, and to correct the fetor. Huxham's tinc. bark and mur. tinc. iron were beneficial in the low and lingering cases. Chlorinated soda, a drachm to three ounces of water, is an excellent gargle. The application of nitrate of silver, solid or in solution (a drachm to the ounce), to the inflamed surface, once or twice a day, was a prominent and indispensable part of the treatment in the severe cases. Externally, the most active counter-irritants are the best applications. The merits of flies, mustard poultices, stimulating lotions, and rubefacient liniments were thoroughly tested—the same arguments urged against blistering in other throat affections apply in this. Mustard vindicates itself from these, and is decidedly a superior application; and when added to Indian meal or wheat bran poultice, can be tempered to the patient's tolerance. It alleviates the internal pain, and controls to some extent the diphtheritic exudation.

Sequelæ.—In several cases serious secondary affections came on after the throat had recovered, characterized by universal paleness of the skin, lips, tongue, and mucous surface, and extreme whiteness of the conjunctiva. The muscles are soft and flabby; the patient is feeble; has a sort of random, shuffling gait; cannot grasp and retain bodies by the hand. There is great mental depression, and disposition to sleep; constant constipation, feeble appetite, and digestion. Neuralgic pains of neck, shoulders, and body are common. In one case sight was so much impaired that large print could not be read, and the voice was nearly destroyed. The soft palate and uvula dangled in the pharynx like a dead curtain. The larynx of this person had been severely affected. All of these cases recovered under rational treatment.

ART. VII.—*On Nervous Action.* By JOHN ASHHURST, JR., M. D., of Philadelphia.

NERVOUS action is of two kinds—direct and reflex. Until within a comparatively recent time the nerves were supposed to receive excitation only from the mind; while the tendency now is to neglect the mind entirely, and attribute all nervous manifestations to reflexions of external impressions.

Two questions of considerable interest here present themselves, viz: 1. How many of our actions are reflex? 2. What constitutes nervous action? The first of these inquiries may be, to a certain degree, answered by experiment and observation; the second is almost entirely speculative.

The phenomena of sensibility may be in a great degree reflex in their nature, and many intellectual operations may be placed in the same category; but the same source of knowledge which informs us of our own

existence, as certainly teaches the power of volition. Every man knows he can will a thing, and no reasoning can convince him of the contrary.

Obviously an impression upon the periphery of the body, being transmitted to the nerve centres, may excite sensation, perception, an intellectual act, and perhaps what appears an exercise of the will, producing a secondary emotion, or even an apparently voluntary action; and this is all, in a certain sense, a reflex phenomenon. Given a nervous system and an excitant and the phenomena are produced. But the will can originate actions, and can modify or even arrest those which are excited from without. I do not refer to such actions as vomiting, or those which are obviously reflex, but to such as would generally be called voluntary. For instance, a person earnestly engaged in reading or writing shall be annoyed by an insect, and shall take measures to rid himself of it without consciousness of his own actions. The sensation of irritation is produced in his nerve centre; perception of the source, intellection of the means of its removal, and volition to put these means in use follow each other so rapidly as to appear coexistent. And yet is it not a reflex act?

Fortunately these nice questions, which savor more of metaphysics than of medicine, involve little that is of practical importance. Reflex action, as it is traced in various functions of the body in their physiological and pathological states, is of comparatively easy comprehension. For the accomplishment of a reflex action there are needed a nerve centre and afferent and efferent nerve fibres. An impression being made upon the peripheral surface, to which an excitor nerve is distributed, some modification, into the nature of which I shall inquire hereafter, is there produced, transmitted to the nerve centre to which the sensory nerve fibres tend, and thence by reflexion produces certain results in whatever parts are supplied with motor influence by the nerve fibres thence proceeding.

Take as an illustration the act of vomiting. It is effected by a peculiar combination of the actions of the respiratory muscles, with probably some assistance from the stomach and bowels. It may be produced in various ways: 1. An irritating emetic, as mustard, by an impression on the centripetal branches of the pneumogastric, causes a modification in the condition of the respiratory nerve centre, "probably," says Dr. Wood, "in the medulla oblongata and the neighbouring parts of the encephalon;" here reflexion is brought about, and by the motor fibres thence proceeding such dispositions of the pharynx, larynx, diaphragm, abdominal muscles, &c., are induced as give rise to the phenomena of vomiting. 2. Substances in any way introduced into the system, by entering the blood and directly coming in contact with the nerve centre, may produce the same result; in this case, so far as concerns the nervous system, more properly by radiation than reflexion. 3. Tickling the fauces by reflex action produces vomiting. 4. Disease of the brain, and even certain ideas and emotions, are sufficient to produce the same result.

It is customary to say that reflex actions are produced independently of volition, and in some cases even of consciousness; and it is obvious that such is the case in respiration, deglutition, defecation, vomiting, &c., which are all reflex actions. But no strict line of definition can be drawn between those acts which are and those which are not of a reflex nature; Kirkes includes the so-called involuntary shrinking of a part when a blow is aimed at it among reflex actions; others call the acts of walking, &c., reflex, and in some cases they certainly appear so. I have in walking along a crowded street been met by an intimate friend, who, without recognizing me or being conscious of my presence, has stepped to one side to allow me to pass; thus adapting means to avoid a collision without consciousness apparently, and, as it were, involuntarily; yet this could hardly be called a reflex action, in the ordinary sense of the term. No limit, it would appear, can therefore be with justice assigned as distinguishing reflex from other actions.

Three kinds of nervous reflexion are admitted by Dr. Carpenter, viz: 1, excito-motor; 2, sensori-motor; and 3, emotional and ideo-motor reflexion. The first finds its centre in the spinal cord, and its phenomena are chiefly manifested when the communication with the parts nearer the brain is interrupted by division or disease, though when the mind is closely engaged upon any subject, or during sleep, such excito-motor reflex acts may be manifested.

Sensori-motor reflexion has its nerve centre in the so-called sensory ganglia, including the medulla oblongata, corpora striata, thalami optici, &c. Under this division would be found the instance referred to immediately above, sensation producing the ordinary results of an intellectual act without the intervention of such intellectual operation. So with all the secondarily automatic acts of Dr. Carpenter. Here it will be perceived the same result may be produced with or without the co-operation of the intellect. But actions of a still more complex nature present many claims to be included as phenomena of reflexion. The intellect itself may be involved by the automatic action of the cerebrum. Illustrations of this are found in dreaming and somnambulism. Many instances are authenticated in which, while dreaming, external circumstances have modified the course of the dream, and caused actions such as would have ensued had consciousness and volition been present. A somewhat similar case is that so often quoted of the criminal who died of fright by the simple flowing of tepid water over his limb, accompanied by the suitable remarks of the attendants; the syncope was as complete as if resulting from actual loss of blood. A similar instance is recorded by Professor Bennett: "A butcher was brought into the shop of Mr. MacFarlan, the druggist, from the market place opposite, labouring under a terrible accident. The man on trying to hook up a heavy piece of meat above his head slipped, and the sharp hook penetrated his arm so that he himself was suspended. On being examined he was pale, almost pulseless, and expressed himself as suffering acute agony. The arm

could not be moved without causing excessive pain, and in cutting off the sleeve he frequently cried out; yet when the arm was exposed it was found to be quite uninjured, the hook having only traversed the sleeve of his coat." Here we have reflex motion, reflex sensibility, intellectual activity, and what might almost be called reflex volition.

Many familiar occurrences come under the same head; the suggestion of a caterpillar to a sensitive person will cause him to feel the inroads of several of those creatures as distinctly as if they were actually present.

So the automatic expression of an idea which is present in the mind, by a person's own free will or by the suggestion of another, will give rise to actions which can hardly be believed to be, but which are undoubtedly involuntary. Such are the phenomena of the "divining rod," which can be explained by the "expectant attention" of Dr. Carpenter much more rationally than by supposing a new "odylic" force in nature. Such, too, are the phenomena of table-turning, spiritualism, and mesmerism, all of which are the results of "unconscious cerebration," causing acts and words which impose not only on the spectator, but frequently upon the medium himself.

Seeing, therefore, the great number of apparently spontaneous and voluntary acts which are produced really without either consciousness or volition, it is not surprising that some should have jumped by analogy to the conclusion that man was a mere machine, acted upon by and responding to external influences, without power of resistance, and, therefore, without accountability for the results. And such appears to be the case, to a certain extent, with savages and infants. But let us beware of that "falling heap" argument, impossible to refute, and yet obviously fallacious. At what age or with what degree of education and refinement free agency, and, therefore, moral responsibility begin, it is impossible to say; but consciousness, the greatest, because the earliest instructor of human nature, declares to each one of us, in such a manner as is incontrovertible, that to be what we are implies necessarily to be capable of volition.

Reflex action is effective not only in these animal functions of the economy, but its operation may be traced in the organic processes also; for instance, in nutrition and secretion. The influence of reflex action on the calibre of the bloodvessels, and the consequent degree of animal heat, was shown by some very interesting experiments of MM. Tholozan and Brown-Séquard, made some years since, and republished in the latter's journal for July, 1858. The result referred to is expressed in these words: "Que l'abaissement de la température d'une main peut amener un abaissement considérable de la température de l'autre main, sans que la température générale du corps diminue sensiblement." By the process of exclusion they show that this diminution of temperature must be due to the smaller calibre of the vessels, and that this is evidently caused by the reflex influence of the spinal column. In this connection the experiments of Bernard may be referred to, showing the influence of the cerebro-spinal system in increas-

ing the vascularity of glands, causing the secretion to be increased, and the venous blood coming from the gland to assume an arterial hue (*couleur rutilante*), and even to flow by jets (*un jet saccadé, isochrone au pouls*), while precisely contrary results were shown to be due to the sympathetic system.—*Brown-Séquard's Journal*, vol. i. pp. 240, 241.

It is, I believe, in the application of these results to the subject of inflammation that we are to look for the perfection of our theories of that process.

Not only is reflex action manifested in the normal condition of the body, but in many pathological states its phenomena are shown in what have been called the sympathies (the first correct views of which were, I believe, promulgated by Prof. Samuel Jackson, of the University of Pennsylvania, in his work on the "Principles of Medicine," published in 1832). This term "sympathy" has often been applied in a very vague manner, being used as a last resort when other modes of explanation have failed. What constitute in a diseased state sympathies, in health are hardly recognized, but, nevertheless, exist; synergy being in a normal what sympathy is in an abnormal condition. The stomach is rich in sympathies with other parts of the body, while the ever-varying sympathetic irritations dependent on uterine affections are almost proverbial.

In a therapeutical point of view reflex action is interesting, as indicating the *modus operandi* of certain medicines. Thus, it is believed by Dr. Carpenter that ergot, cantharides, aloes, and some others produce their several effects by stimulating the spinal cord to unusual sensitiveness to accustomed influences. Conversely opium, by obtunding the sensorium, prevents the action of the most powerful emetics.

The higher kinds of reflex action (the sensori-motor and ideo-motor of Dr. Carpenter) are brought out especially in certain abnormal states which may arise spontaneously, or by artificial induction. Of the former are various forms of delirium and mania; of the latter the states brought on by narcotic medicines, especially opium and the cannabis indica. With regard to the effects of opium we have reliable information in the well-known work of Dequincey; the "hasheesh eater" unfortunately excites disbelief by his marvellous anecdotes—disbelief which was not diminished by the long-time anonymous character of his publication.

It will be remembered that a second question was referred to as of interest in this connection, to wit: "In what way is nervous influence transmitted?" It was said that a certain modification in the condition of a nerve or nerve centre was brought about, which being transmitted produced such and such results. In what does this modification consist? In other words, what is nerve force? A favourite illustration, but which will hardly serve as an explanation, is that of the magnetic telegraph, with its wires and stations; and the compliment has been returned by our great American humorist, who has called the Atlantic telegraph cable the "great par vagum" of the world. Electricity, however, is but a name, conveying no very definite idea

as to the true nature of the force. It is probably (undoubtedly to my own mind), as are the other "physical forces," a form of motion, consisting of vibrations or, more properly, undulations, *i. e.* propagated vibrations.

Whether the hypothetical, all-pervading substance "ether" has a real existence, or whether the undulations of light, heat, sound, &c., are propagated by the various substances which surround us, I will not stop to inquire. I am inclined to think that the phenomena of optics could be explained without supposing such a fluid to exist. Be this as it may, I believe that in whatever manner the undulations of light, and sound, and heat take place (each having some substances specially adapted for taking on its peculiar vibrations), so do the undulations of electricity, and so do the undulations of nerve force take place.

It may not be uninteresting to trace the history of this hypothesis, for it can hardly as yet be called a theory. The idea that nerve force consisted in undulations was hinted at as possible by Le Gros Clark, in the *Encyclopedia Metropolitana;* and such an idea, though not fully developed, appears to have been entertained by Prof. Samuel Jackson, of the University of Pennsylvania, as early as 1837. In a published introductory lecture of 1851, he says: "Nervous force is correlative with heat and electricity, though not identical;" and the identity of the physical forces has been taught by him for over twenty years.

As has been before observed, the nature of the case prevents the demonstration of any hypothesis on this subject, as either true or certainly false; but some analogies may be indicated, and some reasons adduced why such a view has been adopted.

That sound was the result of undulations seems never to have been doubted, so manifestly coincident are its impulses with the seen vibrations of a sonorous body; and hence it is in the science of acoustics that those beautiful laws of undulation have been especially developed. Light is now generally conceded to arise from the same source. Heat is also believed to be produced by undulations; and these are all correlative and interchangeable.

The vibrations of sound are the same in nature, but more slow than those of heat; and it is probable that could vibrations be made to succeed each other with sufficient rapidity, light also might thus be artificially produced. Chemical action again probably has its source in still more rapid vibrations.

Now it seems to me more rational to suppose that the undulations of light are taken on by the optic nerve, or by the ether or phosgene (if its existence be supposed) therein contained, and thus transmitted to the ganglia belonging to that special sense; and that the undulations of sound are taken on by the auditory nerve, or the ether therein contained, and transmitted as before; this, I say, seems to me to be more rational than to suppose some mysterious nervous fluid, or something still more mysterious, without name, to be set in motion, and thus bring about the subse-

quent results. The sense of smell I imagine to be explicable in the same way. In man this sense is in an almost rudimental condition, and consequently not often excited, but by actual contact with the Schneiderian membrane, of odorous particles or fumes. Yet a piece of musk shall be exposed for years without losing appreciably in weight, and I doubt not that the function of olfaction may be excited by undulations alone. So with the other special senses, and by analogy with what is called common sensibility, though this may be regarded as merely a modification of the sense of touch.

A further evidence for this hypothesis is that whatever excites a nerve of special sense produces in it its special phenomena; thus, irritation of the optic nerve causes only the sensation of light, while the auditory nerve can take on only the undulations of sound.

If then, as far as we can observe nervous action in its relation with the external world, undulation appears to be the *modus agendi*, the inference is allowable that all nervous action is referable to the same process. And it would appear that without regard to the mind (which is *sui generis*, and as to its nature entirely beyond our ken) nerve force presents analogies which entitle it to a place among the physical forces. It appears to be correlative with them, *i. e.* can be "mediately or immediately" transformed into them, or produced from them. The sensations of light, heat, sound, &c., may originate subjectively. In the contraction of muscular fibre both heat and sound are produced, motion being intermediate. Electricity again is correlative with taste and smell, sight, hearing, and general sensibility. The increased heat of fever is probably due in a great degree to the morbid nervous action, while here is also one source of the maintenance of the animal temperature.

The "physical forces" arise from without; nerve force finds an excitant also in the inner world—the will and the soul.

ART. VIII.—*Case of Oblique Fracture of the Femur treated by the use of Adhesive Plaster, as a means of producing Extension and Counter-Extension.* By J. F. HUBER, M. D., Lancaster, Pa.

ON Monday, January 9, 1860, J. E., aged fifty-nine years, was wheeling his scissor-sharpening apparatus on the icy pavement, when he fell; the shaft of his wheelbarrow struck him with great force on his right thigh. He was carried to his home, a distance of four squares. One hour after the accident had occurred I saw him, and discovered an oblique fracture of the femur about the junction of the middle with the inferior third, shortening the limb nearly one inch and a half.

Periostitis of a syphilitic character existed in the leg, and his body was covered with secondary syphilitic eruptions. I consented very reluctantly

to take charge of the case, for I apprehended much difficulty, if not complete failure, in securing firm and permanent union of the fractured bone, in consequence of his system being thoroughly saturated with syphilis, and debilitated greatly from his former habits of dissipation, which fortunately had been relinquished about one year ago.

I adjusted the apparatus recommended and described in a very elaborate manner by Dr. David Gilbert, in the April number of the *American Journal of the Medical Sciences*, for 1859. For want of adhesive plaster of sufficient length, the ordinary perineal band was temporarily applied. The patient was somewhat restless the succeeding day, and required some morphia to produce rest. The third day he was restless, had fever, and complained much of an unpleasant sensation where the perineal band rested. This band was removed, and the adhesive plaster applied in its stead. The irritation subsided immediately, he rested well the following night, and continued without pain or uneasiness during the entire period of treatment.

In order to improve the condition of his system and favour a desirable termination, drachm doses of the ferrated tincture of bark were administered four times a day for several weeks, with a nourishing diet. On the tenth day the bandages and splints were removed, in order to institute a careful inquiry into the condition of the fracture, after which they were adjusted as before. This was repeated again on the twenty-first day.

On the 20th of February, precisely six weeks after the occurrence of the accident, they were permanently removed, the bone was found firmly united, and the limb its original length. Locomotion was assisted for awhile with crutches; however these were soon dispensed with, the function of the extremity being fully restored.

It was not necessary to replace the adhesive bands; the ones first applied adhered firmly to the skin during the whole period of treatment. Care must be observed in the application of the adhesive strips; they should be uniformly heated by placing the linen back against some hot surface, until the adhesive material on the opposite side is thoroughly softened, when it should be applied very smoothly to the skin, so as to exclude air entirely.

Adhesive plaster, *properly* applied, forms the most admirable means of producing extension and counter-extension. It is far superior to any other method with which I am familiar, for the following reasons, viz:—

1. The excruciating pain so often produced at the heel, and in the perineum, when the gaiter and stuffed perineal band are applied, the consequent restlessness of the patient, with his earnest importunities to the surgeon for relief, are entirely obviated when adhesive plaster is properly applied as the means of producing extension and counter-extension.

2. The surgeon has perfect control of the extension and counter-extension, without being annoyed with pitiable requests and affecting entreaties from the patient and his friends, to relax the limb in order to obtain relief from his sufferings. He has power to increase or relax the extension at

any time, or to any degree he may desire, and thus secure the original length of the extremity after a firm union of the fragments has been effected. This was considered impossible in oblique fractures when the ordinary methods of treatment were practised.

3. The *perfect quietude* of the fragments at the seat of fracture, the absence of irritation and irritative fever, the great comfort enjoyed by the patient, consequently his non-interference with the retentive apparatus, will secure union of the fractured bone in at least twenty-five per cent. less time than by the usual methods of treatment.

4. The adhesive plaster counter-extending bands require no trouble by way of readjustment every day or two, which is so necessary in the old method.

5. If the adhesive plaster be carefully applied, the bandages and splints readjusted when they become relaxed by the diminution of the swelling of the limb, and osseous union is about taking place, the patient will require but little attention afterwards. In consequence of the above facts, this method is best suited to country and all private practice, especially when the attending surgeon is not constantly at hand.

Art. IX.—*On the Poisonous Effects resulting from the Employment of Arsenical Preparations in the Arts.* By M. Carey Lea, Esq.

Much attention has been attracted of late years in Europe to the increasing use of arsenical pigments in matters connected with domestic economy. Formerly, when Scheele's green and orpiment were the chief colouring substances into the composition of which arsenic entered, their comparatively limited use rendered their poisonous character of less importance; but since the discovery of the substance sold under the name of Schweinfurt green, Swedish green, Mitis green, &c., the case is different. This substance, the aceto-arsenite of copper, obtained by boiling together green verdigris and white arsenic, possesses the finest colour of all known green pigments: this fact, together with its easy production from inexpensive materials, has caused a great extension of its use, and it is time that the impropriety of employing so deleterious a substance should be brought home to those who use it in their manufactures.

The immense extension which its employment has received, even in this country, may be judged of by the following facts:—

The author had recently two rooms papered with different green papers, obtained from different manufacturers. On examination it proved that the green colouring matter in both papers was arsenical. The border was then examined with a like result. The author procured three different specimens

of green material prepared for window shades; all three were found to be heavily charged with arsenic, so much so that from about two square inches of one of them no less than six grains of arsenite of silver were prepared, by precipitating the arsenious acid with nitrate of silver. As these materials varied not only in intensity, but in colour also, the arsenical pigment is no doubt often mixed with other colouring matters—a fact to be borne in mind in making examinations to detect its presence.

Not only the above-mentioned manufactures, but many others, are coloured with the same substance. It is largely used in dyeing carpets. The large pasteboard boxes, so much used in stores for containing fine fabrics, and those employed for keeping documents and papers, are almost always covered with paper coloured green by arsenic. So with the green shades for gas lights, and when the eye becomes acquainted with the peculiar shade of Schweinfurt green, it is surprising in how many things it is detected.

When these considerations are represented to those who employ this pigment in their manufactures, they are met by a denial of its bad effects, and by an unsupported assertion that no evil results from its employment. The answer to this is, that no doubt much of the evil resulting from arsenic is attributed to other causes. The quantity taken into the system in a short period is but small; but the gradually cumulative effect of constant small inhalations of arsenic over a space perhaps of years, must be highly injurious. Facts are not wanting, however, but, on the contrary, are present in abundance, to prove direct evil effects clearly and immediately resulting from this cause. The author was informed by a journeymen paper-hanger that he never put up certain shades of green paper without having his nose, and often his whole face, swelled. In a recent medical journal a case is mentioned where several children fell into a decline, and exhibited such strong symptoms of arsenical poisoning that the physician directed them to be removed to another room, where they speedily recovered. On examination, the paper of the room originally occupied by them was found to contain arsenic. In a recent number of the *London Chemical News* a case is related by the sufferer himself, who, moreover, states he was informed by paper-hangers that no one could have anything to do with that description of green paper without irritation of the mucous membranes of the throat and fauces. Finally, the author subjoins a few lines translated from Dr. Otto, than whom there can be no higher authority on the subject of poisoning by arsenic.

"Schweinfurt green is frequently used for colouring carpets and window shades; but is, on account of its poisonous character, a very dangerous colour. Apart from the poisonous dust which window shades especially produce, the pigment in moist situations disengages deadly arseniuretted hydrogen. Swedish green, Neuwied green, Mitis green, and many other beautiful green pigments, are all Schweinfurt green mixed with colourless substances.

"The use of all these arsenical colouring matters is forbidden in Prussia by law."—*Graham-Otto*, third edition, vol. iii. p. 477.

Amongst the many reactions which afford decisive proofs of the presence

of arsenic, the following will be found very convenient for detecting it in the fabrics in common use in the household, such as carpets, wall papers, window shades, curtains, &c.:—

The suspected substance is immersed in liquid ammonia, and allowed to remain in contact with it for some hours. The resulting liquid is then to be filtered or decanted, and treated with pure nitric acid until it is rendered perfectly neutral. A very slight alkaline reaction is not important; but the liquid should not be acid. Any trace of arsenic is then made evident by the addition of nitrate of silver, which causes an immediate yellow precipitate.

The only substance which affords a precipitate liable to be mistaken for that of arsenious acid is phosphoric acid, which also with nitrate of silver gives a lemon yellow precipitate. Phosphoric acid is, however, not likely to be present in any of the above-mentioned substances; but when a yellow precipitate is obtained it is easy to decide whether it consists of phosphate or arsenite of silver.

For this purpose a tube of glass, which should be free from lead, having about a quarter of an inch in internal diameter, is to be drawn out so that its extremity, for about an inch in length, may have an internal diameter at about one-fifteenth of an inch. The yellow precipitate having been washed and dried, a portion of it, about as large as a large pin's head, is placed at the bottom (previously closed in the lamp), and over it a fragment of charcoal. The charcoal must not be in powder, otherwise it is liable to be carried into the cool part of the tube, and thus mask the result; it must also be thoroughly burnt. The author has found that by cutting fragments of the stems of lucifer matches about an inch in length, placing them in a test tube and applying heat until no more gases are disengaged, a pure, soft, and flexible charcoal is obtained, of exactly the shape requisite for the use intended.

The charcoal being adjusted, the narrow part of the tube is placed on the flame of a spirit lamp, so that the charcoal, and not the substance, shall be heated. When the charcoal is red hot, the tube is inclined from its previous horizontal position, so as to bring the point of the tube where the substance lies, into the flame, keeping still the charcoal in it also. The silver salt is immediately decomposed. If it contain arsenious acid, the latter is immediately reduced by the charcoal, and forms a grayish-black ring in the cool part of the tube. Very good figures, illustrating the operation, will be found in Graham-Otto, *Lehrbuch*, vol. iii. p. 508.

The use of arsenic is now obtaining so dangerous an extension in manufactures, that the public have a right to ask for protection by legislative enactment, which should without delay be applied to put a stop to this reckless traffic.

Art. X.—*Case of Compound Fracture of the Bones of the Tarsus, implicating the Ankle-Joint, with perfect Recovery.* By Wm. T. Hord, M. D., Passed Assistant Surgeon U. S. Navy.

Frederick Langdon, seaman, aged 24, born in England, was admitted on the evening of September 1, 1859, with compound fracture of the astragalus, os calcis, and cuboid bones of left foot, subluxation of right wrist, and other minor injuries.

He had fallen from the main rigging to the spardeck, a distance of fifty-seven feet, struck with the hollow of his left foot upon the end of a belaying pin, in the rail about the mast, making a very large lacerated wound in the soft parts, and shattering the rounded head of the anterior extremity of the astragalus, the os calcis, and cuboid. The finger could easily be passed into the ankle-joint, through the lacerated wound in the sole of the foot. The hemorrhage was very profuse, and arterial in its character; the wound of the soft parts was very extensive, entirely severing the outer half of the foot. The contusion was very great, and the integument was torn up in every direction from the wound, to the extent of two or three inches. Several small pieces of bone were picked up about the deck. The laceration of soft parts was so great, that the hemorrhage was not so large as was feared from the extent of the wound, and the vessels involved.

The man being young, and in vigorous health, it was thought best to attempt to save the foot, notwithstanding the severity of the injury; there was no great displacement of the bones; a few loose spiculæ were removed. There was no hemorrhage from any large artery requiring a ligature. Wet lint was applied to the wound; the foot bandaged, elevated, and close watch kept to see if the bleeding was checked. He took morph. sulph. gr. ss twice.

September 2. Passed a tolerably comfortable night. The hemorrhage has ceased; the foot is somewhat swollen and painful. There is some febrile action. Keep foot elevated, and as swelling is not great, let dressings remain for fear of recurrence of hemorrhage. Diet farinaceous; opiates, if necessary.

3*d*. Removed dressings this morning for the first time since reception of injury; there is a good deal of tumefaction of foot and ankle; the wound shows that the line of demarcation has taken place between the dead and living parts. Pulse 92; skin cool; tongue clean; complains of but little pain in foot; slept some last night. No discharge from bowels for three days. Take sulph. magnesia ℥ss, and repeat this evening, if necessary; keep foot elevated, and continue applications of cold water; diet light; opiates, if necessary.

4*th*. The foot is very much swollen; edges of wound puffed out; not very painful; no fever. Sulph. magnesia acted well. Anodynes, p. r. n.

5*th*. Foot and ankle very much swollen to-day. Some discharge of pus from wound. Cold water still feels very comfortable; continue it; keep foot elevated. Low diet.

6*th*. Doing well; the line of demarcation between dead and living parts better defined; no fever; less swelling in ankle-joint; swelling in foot very great; bowels regular. Continue treatment.

7*th*. Doing well; no fever; foot very much swollen; slough disposed to separate. Discontinue applications of cold water, and apply poultice of flaxseed meal.

8*th*. Foot looks very well this morning; the dead parts are separating,

and the edges of the wound look healthy, though still much swollen. Continue poultice.

9*th*. Sloughs separating. Apply sol. nit. plumb. to correct fetor. Generous diet.

11*th*. Improving, swelling subsiding; suppuration very profuse; wound granulating. Continue poultice; and nit. plumb. sol. (gr. x to aqua ℥j) to correct fetor. Generous diet.

14*th*. All sloughs appear to be separating from the superficial parts of wound. Discharge still very profuse.

15*th*. Foot looks very well; is granulating finely. Apply roller and simple dressing to foot; poultice discontinued.

From this time there was continued improvement; the swelling began to subside; the displaced outer anterior part of the foot to return to the proper position. Passive motion at the ankle-joint every day or two.

He was discharged to duty November 28, 1859, with a perfect use of foot and ankle, and only a very deep cicatrix at the side of wound.

It is somewhat remarkable that, notwithstanding the severity of the injury, not a single bad symptom manifested itself.

Such extensive injury of the foot and ankle is generally considered to render amputation unavoidable, either primarily or secondarily; but in this instance of very extensive injury the recovery is perfect.

At the date of this report the man is and has been doing duty: he has no pain in foot or ankle, and has perfect motion in the joint.

U. S. SLOOP OF WAR LANCASTER, BAY OF PANAMA, Feb. 18, 1860.

ART. XI.—*Case of Dislocation of the Astragalus, occurring on board U. S. Sloop of War Jamestown.* By T. L. WILLIAMS, M. D., Surgeon.

W. M., landsman, æt. 24, native of Maryland, admitted to the sick list November 29, 1859. While "loosing sails" was knocked from the main-yard and fell to the deck, a distance of forty-two feet, striking the main rigging in his descent. Upon examination, immediately after the accident, it was found he had received a contusion of the right hip and a dislocation of the right astragalus forwards. The foot was turned inwards, the outer edge of the sole looking downwards. The head of the astragalus was prominent, resting on the upper surface of the scaphoid. No fracture of tibia or fibula.

Reduction attempted at once, failed, until the patient was etherized; when the bone was replaced by pressing it backwards, at the same time extending and straightening the foot. Limb placed upon a double inclined plane, and the foot loosely fastened to the footboard; lead water to the joint and foot.

November 30. Foot and leg much swollen; extravasation of blood over external malleolus.

December 4. Swelling subsiding, and Scultetus's bandage and rest on inclined plane.

12*th*. Swelling has nearly disappeared; apply roller, and remove limb from inclined plane.

16*th*. There is still effusion around the joint; apply pasteboard splints and roller; motion of the joint perfect.

January 2. Ordered passive motion of joint; continued roller.

5*th*. To move about once or twice daily, with crutch and stick.

February 1. Continued to improve; has good use of the joint; there is still thickening and tumefaction over external malleolus. Sent to the United States.

TRANSACTIONS OF SOCIETIES.

Art. XII.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

1860. *Feb.* 22. Dr. Packard presented specimens of fibrous tumours of the uterus and hypertrophy of the heart, accompanied by disease of the mitral valve and aorta. The tumours were of very large size, and grew from the fundus of the uterus; the neck was healthy. The patient had not suffered any material inconvenience from the morbid growth.

Perforation of a Pulmonary Valve.—Dr. Hall, in bringing forward this specimen, said, that although almost destitute of history, he thought it would interest the society, as it was the first of the kind that has been submitted to its notice, and as it was of very unusual occurrence. The whole subject seems, indeed, to be still in an unsettled state; many practically leaving out disease of the right side of the heart in an estimate of cardiac diagnosis. A careful inspection of the records of pathology for the past few years will, however, prove that morbid conditions of the pulmonary artery and its valves are of more frequent occurrence than has been stated by many standard writers on diseases of the heart.[1]

The specimen upon the table was removed from a man, aged forty-two, who died in the summer of 1857, in the Pennsylvania Hospital, during the service of Dr. Gerhard. He had been sick for eight months. On admission he did not appear to be very ill; he had shortness of breath, and there were large bronchial rales over the posterior part of the chest. Over the base of the heart was heard a double sawing sound, completely obscuring the normal sounds.

At an examination after death the aortic valves were found to be healthy. But in one of the pulmonary valves was detected a perforation about the size of a large goose quill; at the edge of this was a small, single, pediculated vegetation. The mitral valves were thickened and opaque, with a fibroid deposit in one of the curtains.

Dilatation, aneurism, contraction of the pulmonary artery, are not as rare as affections of its valves. Louis[2] has recorded quite a number of the former conditions. The alteration of the valves may embrace every degree of change, from mere fibroid thickening up to their entire destruc-

[1] Skoda, Auscultation and Percussion, Philadelphia, 1854, p. 281; Hope on the Heart, Philadelphia, 1842; Crisp on the Arteries, London, 1847.

[2] Recherches Anatomico-Pathologiques sur la Péricardite, Paris, 1826.

tion.[1] Single perforation, as contrasted with a cribriform state of the valves, appears to be a less frequent lesion than any of the others above mentioned. At the autopsy of Sir Astley Cooper, made by Mr. Hilton, there was found "through one of the pulmonary valves, near its angle of union with an adjoining valve, a perforation nearly the size of a small goose quill." There were also affections of the valves of the left side. It is not mentioned whether there was hypertrophy of either ventricle.

In the recent work on pathological anatomy, by Dr. Wilks,[2] it is stated "that you may every day meet with a perforated or fenestrated condition of the aortic and pulmonary sigmoids, above the crescentic line where they are apposed. The perforation can, therefore, produce no ill effect. These small holes have often been looked upon as a result of atrophy; but there is little proof of this. I have seen them in young people, and I have always regarded them as congenital; for on some of the lower animals the sigmoid valves are attached to the artery by their tendinous cords (which are produced here by the perforated condition), in the same way as the auriculo-ventricular."

It is possible that these defects may now and then be congenital; but there is no evidence to show that they are so, and there are the strongest reasons for believing that in the great majority of cases they occur at periods subsequent to birth.

Generally these alterations of the pulmonary valves appear to arise from the extension of endocarditis of the right ventricle. Guy's Hospital Museum 1413[55] furnishes an example of their entire destruction from this cause.[3]

These perforations of the valves, regarded by Wilks as congenital, are attributed to interstitial absorption by Kingston.[4] Of thirty cases of diseased valves he found the mitral valve cribriform in one, in two the tricuspid, and in one both the aortic and pulmonary valves were so.

While upon this subject I cannot refrain from quoting two cases, the one of acute the other of chronic inflammation of these valves, that places the two conditions in marked contrast.

The first is reported by Dr. Graves,[5] of a man with pneumonia and partial solidification of the right lung. The disease remained stationary for about three weeks, then there occurred a sudden change for the worse, and the patient died in twenty-six hours. Inspection showed the pulmonary artery filled with a fibrinous clot. There were only two valves, and these were coated with a recent deposition of lymph, in some situations almost a quarter of an inch thick. The valves were much thickened and opaque,

[1] Guy's Hospital Reports, 3d series, vol. iii. p. 257.

[2] Wilks' Lectures on Pathological Anatomy, London, 1859, p. 93.

[3] Cases of Disease of the Pulmonary Artery and its Valves, by G. Whitley, M. D., Guy's Hospital Reports, 3d series, vol. iii. p. 257. (Plate VII. Fig. 2.)

[4] Med.-Chir. Transactions, vol. xx. p. 94.

[5] Dublin Journal, vol. xxii. p. 388.

contrasting in a remarkable manner with those of the aorta, which were quite free from disease.

The second, a case of chronic inflammation of the pulmonary valves, is to be found in the *Archives Générales de Médecine* for 1844,[1] and was that of a girl, aged eighteen, who had presented for a long period symptoms of organic disease of the heart. At the inspection the right ventricle was very much distended, with hypertrophy of its walls. The pulmonary valves were thickened in an extraordinary manner. They were rigid, tendinous, and of a grayish-yellow colour. The tricuspid and bicuspid valves were converted at their free border into a tendinous substance, and covered with numerous irregular vegetations.

On the subject of vegetations on the pulmonary valves, Corvisart[2] has reported a case in a woman, aged twenty-five, in which a great number were found. Three cases of vegetations, two of which were so large as to obstruct the pulmonary orifice, are to be found in the Guy's hospital reports.[3]

Cancer of the Rectum of exceedingly small size; enormous accumulation of Fat in the Abdomen.—Dr. Packard reported the following case: George Smith, æt. 59, an Englishman, was first seen by me in June, 1859. He was then very much blanched and emaciated, and extremely weak, complaining of constant pain and bearing down in the rectum; there were very frequent discharges of flatus, and of small quantities of mucus. Occasionally a mass of white scybala was passed, with much pain. Several fistulæ existed about the anus, and some hæmorrhoids. Within easy reach of the finger there was a stricture of the rectum, irregularly nodulated, firm, and barely admitting the point of my forefinger; this stricture I thought to be cancerous.

His mind seemed somewhat impaired by suffering and debility, and the only available treatment was of course by a combination of stimulants, tonics, and anodynes. After attending him for some time I lost sight of him, or at least saw him at long intervals only. On the 7th of March he died, according to the account of his attendants very quietly, and probably from sheer inanition.

Assisted by my friend, Dr. Dunton, I made an examination of the body forty-eight hours after death.

There was no rigor mortis; the skin was very pale, smooth, and destitute of hair, except upon the face and about the pubes. The subcutaneous fat formed an excessively thick layer, and a like deposit existed everywhere beneath the peritoneum; the appendices epiploicæ were very numerous and large. All the tissues were abnormally pale and soft.

The stomach was pale, flabby, and easily torn; the intestines nearly empty, their walls very thin and soft, but without any other sign of disease; the colon was very much contracted throughout. The rectum was encased in an enormous quantity of fat, and strictured by a thread-like deposit of fibro-plastic matter. The liver was nearly white, and seemed almost like a mass of tallow, so extreme was the fatty degeneration it had undergone. The kidneys were embedded in a very large quantity of fat, and their structure was degenerated; under the microscope some of the tubuli

[1] Tome v. p. 364–5.

[2] Lesions Organiques du Cœur et des Gros Vaisseaux, Paris, 1818, p. 232.

[3] Third series, vol. iii. pp. 256, 259, 260.

were of normal appearance, but many of them contained large oil-drops, and some of them were entirely empty; the epithelial cells contained clusters of minute oil-drops. The supra-renal capsules were pale, and their walls very thin. The spleen was healthy, but very small, and lighter-coloured than usual; the pancreas was quite healthy.

Thorax.—The pleural cavities contained some liquid, the characters of which were not clearly made out, because the thorax was entered through the diaphragm. Both lungs presented spots of a white deposit, upon their surfaces only; the mass of each organ was pale, except posteriorly, where hypostatic congestion had taken place. The deposits were few in number, and of variable size; a line of them, upon the anterior surface of the left lung, caused a depression parallel to the division between the two lobes, an inch or two above this fissure, as if there had been a rudimentary separation of a middle lobe. This white deposit, examined microscopically, presented forms which resembled the ordinary cells of cancer.

The heart was loaded with fat, and its muscular structure had undergone fatty change to a very marked degree. Its columnæ carneæ were singularly subdivided, so that each column was very small, and the interior presented an unusual aspect. All the valves were healthy.

Complete ossification of the costal cartilages had taken place.

Microscopically examined, the deposit about the rectum, which was so tough that its structural elements could scarcely be separated by tearing with needles, was found to consist of very fine wavy fibres, many of them with elongated, nucleolated nuclei. These fibres were very long, and arranged in bundles.

The deposit in the lung was evidently degenerated to a great degree; but the very irregularly shaped large cells, with one or more large nuclei, containing single or double bright nucleoli, which were here and there visible, resembled those generally met with in cancer. Most of each mass was in a granular condition, and the fibrous walls of the air-cells and tubes could be readily traced.

The case now detailed presents several features of marked interest. Its whole course resembled that of cancer; and more than one gentleman, of far more experience than I could lay claim to, pronounced it positively to be of that character. And yet, although *à priori* any one would have looked to find an immense mass of disease, the whole of the adventitious deposit detected might have been contained in a teaspoon.

The clinical symptoms—the emaciation and the want of healthy stools—may be accounted for in part by the disability for its function under which the liver must have laboured more and more. Nutrition being interfered with, the intestines wasted, the heart became the seat of fatty degeneration, the kidneys suffered in like manner, and perhaps the spleen dwindled as the blood-making process grew less and less active. The extreme contraction of the colon may be accounted for by the fact that it received nothing from the upper portion of the canal to distend it.

But how are we to understand the enormous accumulation of fat in the abdominal subcutaneous and subperitoneal cellular tissue? The limbs were quite thin, and the thorax, so far as was ascertained, contained no abnormal

fat, except what was connected with the heart. I confess that this phenomenon does not seem to me to be easily explicable.

Another difficulty is presented in reference to the order of sequence of the hepatic and rectal disease. Most probably they were simply coincident, perhaps coëtaneous, but without any mutual connection, except that the rectal stricture may have aggravated the disturbance of nutrition due to the state of the liver.

Dr. S. W. GROSS stated, that he had at present a case of cancerous stricture of the rectum under treatment, in which the patient, although pale, was extremely corpulent. His abdomen especially was very large.

Dr. WOODWARD called attention to the fact that a fat belly, with thin limbs, was the result of particular drinks. It is very common in some nations.

Dr. KELLER mentioned that the bodies of drinkers of pale beer in Berlin are thus shaped.

Dr. LENOX HODGE reported that the patient, whose cancerous breast had been exhibited to the society (see *Proceedings* of November 9, 1859), was again in the hospital, the cancer having returned. The specimen was one which had been pronounced, after careful minute examination, lardaceous cancer. Its speedy return illustrated the malignancy of this form of the malady.

March 28. *Slit-like Perforation of the Aortic Valves.*—This specimen was exhibited by Dr. PACKARD. The early history of the case was narrated by Dr. KANE.

The patient was an Irish labourer, æt. about 40, of medium height, and strong build; who for some years past had been addicted to the intemperate use of liquor.

When I saw him for the first time, on the 8th of February last, he was lying in bed, with his shoulders propped up, and his head thrown far back, complaining of severe pains in the back of his neck. On my telling him to sit up, he did so with the aid of his wife, she raising him while he supported his head with both hands. This, together with the peculiar attitude of the head, made me at first suspect caries of one of the cervical vertebræ; but I found the vertebral spines prominent, and free from tenderness on pressure. There was, however, a slight amount of tenderness in the muscles, at the back part of the neck.

The pulse was rather quicker and weaker than normal, the tongue coated with a thick blankety fur, the skin dry and harsh, the complexion sallow, and the bowels constipated. I noticed too a constant tremor of the head, which, however, the family told me was of long standing, having existed ever since a sunstroke, received some seven years previously. The family also told me that about five years before the illness under which he then laboured, he had been the victim of a severe attack of inflammatory rheumatism. Percussion gave a clear sound all over his chest, and his lungs seemed perfectly healthy on auscultation. On listening over the præcordial region, however, a slight murmur was perceptible synchronous with the heart's systole, and seemingly clearest in the region of the apex; but the exposed situation of the patient's bed, which was in a cellar, directly in the draught between two doors, made me unwilling to strip him; and this, together with the constant noise which surrounded us, prevented my coming to a positive

conclusion as to the exact seat of lesion, though I suspected it to be the mitral valve. Moreover, as there was no pain in the neighbourhood of the heart, I was inclined to refer any disease which might exist in that organ to the previous attack of rheumatism.

I ordered warm fomentations and dry cups to be applied to the upper spine, and gave him a mercurial purgative, to which I added, as the urine was rather scanty and high coloured, a solution of acetate of potassa, to be taken three times daily, and a powder of nitre, opium, and ipecac., to be given at night.

The next day my patient felt better; his bowels were open, his skin soft and moist, and his urine abundant. His tongue, however, continued coated, and the pain in his neck was unabated.

I attended this case for five weeks, during which time the pain in the neck continued with unvarying intensity, and the general symptoms remained unaltered.

The principal treatment was alkaline; but colchicum, guaiac, and iodide of potassium were all tried, and proved unsatisfactory. About the end of the third week, the patient growing weaker, and complaining of loss of appetite, cinchona and bitter tonics were added to the previous treatment. Local applications, such as blisters, dry and cut cups, warm fomentations, and stimulating counter-irritant lotions, were tried and retried, but with no apparent results.

The last time I saw my patient his pain in the neck had suddenly lessened in violence, but only to be supplanted by equally severe pains in the chest. I listened to his heart at this time, and could distinguish no alteration in the original murmur.

A severe attack of sore throat prevented my continuing in attendance on this case, which was taken charge of by my friend, Dr. Packard.

Dr. PACKARD continued the account: When I saw this patient, on the 11th of March, he was extremely weak, and was said by his friends to have eaten nothing of any consequence for a long time. He complained of great pain about the lower part of the thorax, on both sides. This I regarded as intercostal neuralgia or rheumatism, and ordered dry cups, the abstraction of any blood being out of the question. A stimulating liniment, and the wrapping of the chest in raw cotton, were also employed, with some success.

A day or two after, as he had had a painful watery passage from his bowels, with fever, and tenderness and enlargement of the liver, I ordered a blister over this organ, and some powders of ipecac. gr. $\frac{1}{3}$; hydr. chlor. mit. gr. ss; and op. gr. $\frac{1}{4}$; but they had very little effect.

On the 16th, finding him very weak, with a dry, brown tongue, I ordered him a mixture containing ol. terebinth., rather in the hope of stimulating him, than with any other therapeutical view. He, however, sank and died that night.

The autopsy was made twenty-two hours after death, Drs. Kane and Wurts kindly assisting me.

Head.—The pericranium was very closely attached to the bone, which was thicker than usual. The meningeal vessels were somewhat distended with blood; but the cerebral sinuses were for the most part empty. There was a good deal of serum beneath the arachnoid. The brain-substance was unusually dense, and a little congested. It seemed, as it were, saturated with serum, which dropped continually upon the floor, when the organ was held in the hand. Very little serum was, however, found in the ventricles,

which seemed quite normal. In the basilar artery, and in its afferent and efferent branches, there were firm clots, of a deep red colour.

Thorax.—The lungs were healthy, full of air and frothy mucus. The heart was fatty, its substance being degenerated; it was large and flabby, and in its ventricles were contained very large, pale, firm clots, quite closely adherent to the inner surface of the wall, as well as entangled among the columnæ carneæ. All the valves on the right side were healthy; on the left side the mitral valve was thickened and somewhat rigid. The semilunar valves of the aorta were, however, the seat of the greatest lesion; one of them, behind which was the mouth of a coronary artery, was largely covered with vegetations, but an irregular perforation of the mass had in some way taken place; both the others were torn down from the middle of their free edges, nearly to their place of attachment. Hardly any doubt could be entertained that this tearing had taken place some time before death; but from what cause it would seem difficult to explain.

Abdomen.—All the subcutaneous and subperitoneal fat was very abundant, but singularly irregular and straggling in the manner of its disposition. The liver was a good deal enlarged, and in a state of not very advanced fatty degeneration; the gall-bladder dark coloured, but not very full. The stomach and intestines were apparently normal; they contained nothing but mucus, and some bile. The spleen was large and rather soft, but healthy, as was also the pancreas. The kidneys were large and quite fatty; the supra-renal capsules healthy.

Dr. HODGE remarked, in reference to the heart-clots on the table, that in examining the hearts of patients who had died from acute injuries, and of those whose death was attributed to mania-à-potu, he had often found firm yellow clots, and desired the views of the society on two points connected with this subject: 1st. Can a clot form in the heart during life? and 2d. Does the existence of a heart-clot necessarily cause death?

Dr. PACKARD said that he had no doubt of the fact that heart-clots might be formed during life, and that he regarded those found in the heart, from which the specimen had been taken, as of this nature. He added, that it was no uncommon thing, in making an autopsy, to find two varieties of clot in the same heart: one soft, purple, and resembling currant jelly in appearance, being evidently of post-mortem formation; while the other, formed during life, has been washed perfectly clean and white by the circulating blood, and is so firm in consistence as to simulate organized tissue.

Dr. LA ROCHE observed, that he had found clots of both the varieties spoken of by Dr. Packard in the hearts of patients who had died of fevers, where the autopsy was made so soon after death as to preclude the idea that they were of post-mortem formation. Yet, there had been no symptoms during life to indicate their existence. He, therefore, argued that heart-clots might exist without producing death, and further expressed the opinion that the clots found in the hearts of fever patients, especially yellow fever patients, were generally formed long before death; for in these cases the blood is known to be not very prone to clot. Indeed, it will scarcely do so at all, unless whipped. Now, the whipping action of the heart almost entirely ceases for some hours before death, owing to the slow action of the organ, and yet the clots are found to be remarkably firm.

Wound of the Stomach.—Exhibited by Dr. REED. A. B., coloured, twenty-two years of age, was brought into the Pennsylvania Hospital about 12 o'clock on Saturday night, the 24th of March, very much prostrated, and bleeding from a large wound in the left side, through which

a part of the omentum protruded. He had evidently lost a great deal of blood, was nearly pulseless, and his sufferings were extreme. He was exceedingly restless, turning from side to side. He had been stabbed in the street, was found lying on a cellar door, and was taken at once to the hospital. The omentum was returned, and the external wound closed with lead sutures, and compresses and broad strips of adhesive plaster passed half way round the body, and a bandage passed over all, entirely round the body. He vomited while his wounds were being dressed, and afterwards several times. There was no evidence of blood in the stomach; the breathing was hurried and difficult, about 56 to 60 in the minute. The water had to be drawn off by a catheter. Brandy and opium were given in full doses, principally by injection. Up to 5 o'clock in the morning, 410 drops of tinct. opii were administered—one dose of 50 drops by mouth, and three injections of 120 drops each. As the pulse was flagging, the patient was stimulated freely. At 5½ o'clock, he fell into an uneasy sleep. At 7½ o'clock the respirations were 50 per minute. At 10 o'clock, he was awake; sensible, though restless. He had not vomited since 3 o'clock A. M. The belly was tympanitic. At 12½ o'clock the patient was seen by two of the attending surgeons. There was no change. He complained of pain in abdomen, and great thirst; the pulse was quick and feeble. At a quarter before 4 o'clock, he was in articulo-mortis; had lain quite still for an hour or two, and had then suddenly raised himself up to pass his water, when he sank back, and died in a few minutes.

Post-mortem examination sixteen hours after death.—Small superficial wound in front of the left arm.

A penetrating oblique wound, about two and a half inches in length, on left side of thorax, downwards and outwards. On making a longitudinal incision through abdominal walls, a large quantity of reddish serum filled the cavity of peritoneum; deep congestion of the intestines and deposit of discoloured lymph, and some of the contents of the stomach were found upon the surface of the liver and bowels.

Thorax.—Left lung partially collapsed; no wound of lung.

Wound in cartilage of ninth and eighth ribs, three-quarters of an inch in length and about a quarter inch in width.

Wound in diaphragm near lower edge, just at the angle where the diaphragm passes off from the ribs to form the floor of the thorax. In the wound of the cartilages the gastro-colic omentum was found engaged, filling it up entirely. Omentum confined entirely by cartilages, and not by the external muscle.

Wound in stomach three-quarters of an inch long in the lower superior end of greater curvature; mucous membrane everted; some congestion of coats of stomach around wound; no evidence of any hemorrhage into stomach; large intestines contracted; no wound; coils of small intestines all glued together by lymph. The blood which escaped into the peritoneal cavity, as well as the contents of the stomach which passed out, no doubt caused the extensive peritonitis which was set up.

The lymph deposited on the intestines was examined and found to be unorganized. That there was no vomiting of blood at any time, and no vomiting at all after the first three hours had elapsed, are interesting features in the case, showing the absence of two symptoms which generally accompany wounds of the stomach. The patient lived sixteen hours after the accident, under full doses of opium and stimulants. The extensive

peritonitis, with such quantities of lymph deposited within so short a time, is an interesting example of how rapidly fatal such an acute attack may be.

Dr. WOODWARD remarked, with reference to the absence of vomiting of blood, that he had frequently made incisions into the stomachs of dogs without producing emesis of any kind.

Dr. GROSS observed that although vomiting had attended all the wounds of the stomach in the human subject which had fallen under his notice, yet he had not observed the presence of blood in the vomited matters to be all invariable.

Dr. ROBERT P. HARRIS stated that he had met with a remarkable case of self-inflicted *wound of the stomach*, in which a large portion of the stomach was removed, the patient living for twelve hours. About thirteen years ago, a man of forty years of age, having heard upon his return from a sea-voyage of a few months' duration that his wife had been unfaithful to him, armed himself with a case-knife, entered his house very unexpectedly to the object of his attack, and meeting her upon the stairway, plunged the weapon into her chest, turned it round in the wound and withdrawing it, left her dead at the foot of the stairs. Having accomplished this act he ran to an upper room, and with the same knife wounded himself in the right upper part of the umbilical region, making an incision through the abdominal wall of two inches in length, running in a direction downwards and inwards towards the umbilicus. Through this wound he instantly dragged out the omentum, which, with its presenting attachments, he cut off close to the surface of the abdomen, and then commenced to pull out the next presenting body, *i. e.* the small intestine; but being interrupted by the entrance of a stranger, who had been attracted to the house by hearing the scream of murder! given by the woman at the moment when the attack was made upon her, he cut off hastily what he had drawn out, before the man could get possession of the knife.

When called to him I found him excessively pale and feeble, evidently suffering from internal hemorrhage, but wonderfully calm and composed, considering the nature of his injury, which I readily learned by examining the parts removed. These consisted of a large section of omentum, to which was attached a portion of the greater curvature of the stomach, measuring an inch and a half wide and two and a half inches long, together with about three feet of small intestine. The case being evidently hopeless, nothing was done but to close the wound and try to make the patient as comfortable for the closing hours of his life as possible. Without having been made aware of the nature of the internal injuries inflicted on himself, the patient informed me that he felt as if there was a hole in the bottom of his stomach, for that when he had taken a drink of cold water it seemed to him that it ran out, and he desired to know if there were no means by which his intolerable thirst might be quenched without drinking. This end was to a great degree accomplished by making use of a linen sop dipped in ice-water and putting it into his mouth.

A very remarkable feature in this case was the wonderful composure of the patient, who did not manifest the slightest symptom of that want of fortitude so commonly met with in subjects who have received a wound of the stomach. Brave men, who could have borne to have had a leg or an arm shot off in battle without complaint, have been made to cry like children under the depressing effect of a wound in the stomach. So great was

the control of this patient over himself, that he scarcely appeared to suffer, except from weakness and thirst. He lived twelve hours after the receipt of injury, and died chiefly from the shock to the nervous system and the loss of blood internally. As there was no opportunity afforded for an autopsy, it could not be determined whether there was any commencing peritonitis or not.

April 11. *Spontaneous Cure of a Popliteal Aneurism.*—Presented by Dr. LENOX HODGE. This specimen, of a spontaneous cure of a popliteal aneurism, was removed last July from a patient of Dr. Pancoast. When first seen by Dr. P., the aneurism was about the size of an English walnut, pulsating in the popliteal space. The man was 60 years of age, and was broken down in health from a tight stricture of the urethra, causing frequent retention of urine, and consequent inflammation of the bladder. On this account no operation was deemed advisable. Bellingham's compressors were employed for a time, but after a short and unsatisfactory trial were abandoned, on account of the uneasiness and œdema of the leg they occasioned. About two years afterward he had a chill, without any special cause that he knew of. From the time of this chill the tumour ceased to pulsate. During the two years its size had not varied in any marked degree; as soon as the pulsation disappeared, the tumour grew less; and last summer, when he died from the disease of his bladder, nothing could be felt but a hard cord. The femoral artery was free and apparently healthy, as far as the superior articular branches of the knee; for two inches below this it was a solid cord, and its diameter but a little greater than that of a normal artery in this region. The circulation appeared to have been perfectly kept up by means of the articular branches, which were all considerably increased in size.

Extensive Fracture of the Skull; Life prolonged for four hours.—Dr. REED said: F. N., sailor-lad, aged 15, was admitted into the Pennsylvania Hospital on Thursday, the 5th of April, at 11 o'clock A. M., in an insensible condition. His respiration was heavy, stertorous, and hurried; the pulse full and slow; the surface cold. He was exceedingly restless, requiring several persons to keep him upon the bed. He had been struck by a tackle-block weighing 200 lbs., which becoming detached from the mast-head some seventy feet high, fell, and the rope catching upon the gaff (a transverse beam at right angles to and half way down the mast) swung round and struck him a side blow as he stood upon the deck.

On examining the head a very large depressed fracture was found over the left parietal and frontal bone, with fragments of bone evidently displaced. It presented the appearance as though the whole side of the head and face were driven in. There were great contusion and considerable ecchymosis, especially about the left eye; but the ecchymosis was circumscribed by the orbicularis palpebrarum muscle. There was also a fracture of the left radius. The patient's movements were principally confined to the left arm and leg; the limbs of the right side seemed partially paralyzed, and some time before death, there was entire loss of power on that side. But little could be done for the patient, as he could not swallow. He gradually sank, and died comatose about $2\frac{1}{2}$ o'clock P. M., nearly four hours after the accident. An hour before death blood and part of the brain passed out of his nose. There was no bleeding from the ear. Pupil of the eye was dilated, but the conjunctiva not injected.

Autopsy 30 *hours after death.*—On making an incision through the scalp the pericranium was found torn up, and the scalp loosened on a large part of skull; large quantity of blood effused beneath scalp; the left parietal bone broken into some six or eight pieces; coronal suture separated throughout its entire extent; fracture extended into the right parietal and frontal bones. Blood-clots found upon the dura mater, and beneath it upon the arachnoid, and also beneath that membrane, especially at a point diagonally opposite the seat of injury. Anterior left lobe of brain was severely lacerated; upon removing the brain the inferior vessels of the dura mater were found much engorged. On stripping off the dura mater from the base of skull, the fracture was found to extend through the occipital from left to right. Petrous portion of left temporal bone badly fractured; in front the fracture extended upward through the orbital plate of frontal bone into the frontal sinus, also down into the cribriform plate of ethmoid bone. Through the hole made in this plate the blood and brain doubtless descended during life. No blood or serum in ventricles. All other organs were found healthy.

There are several points of interest in this case to which I wish to call the attention of the Society.

1*st.* The length of time the patient lived after such an accident—four hours. The great laceration of the substance of brain at the seat of fracture; the very extensive fracture of the skull (which was of ordinary thickness) extending in three directions—one separating the coronal suture and extending into the parietal and frontal bones of right side, another from same point backward and downward through temporal bone and through the occipital bone over to the right side, a third issued through frontal bone into frontal sinus and downward through ethmoid—all show a terrific shock, from which it seems almost incredible that death was not instantaneous.

2*d.* The paralysis of right side coming on gradually.

3*d.* The complete detachment of the coronal suture.

4*th.* The intense ecchymosis of the surface circumscribed by the orbicularis-palpebrarum muscle.

5*th.* The great amount of hemorrhage upon the side of brain diagonally opposite the seat of injury.

6*th.* The entire absence of blood or serum in the ventricles of brain, and of hemorrhage from the ear.

7*th.* The brain-substance being driven through the cribriform plate of the ethmoid into the nose.

Cases of Diphtheritis. Case I. *Diphtheritis with Pseudo-membranous Exudations in the Pharynx and Larynx.*—Dr. Keller, in presenting the specimens said: Augustus Kieffer, nine years of age, a boy of healthy constitution, and of a very amiable disposition, had not felt very well for several days, when his mother took him with her to church on the 6th of April. On the 7th he became feverish and complained of sore throat. When I saw him on the morning of the 9th, I found him with a slight fever; the tonsils were very much swelled, and partially covered with membranous exudations. The tongue was coated; there was pain on swallowing, and a slight bronchial cough; the voice was unimpaired. I ordered

rest in bed, a purge, warm poultices around the throat, and frequent gargling with a strong decoction of white oak bark, alum, and honey. There was no change the next day. On the 11th he became aphonic, but there was no other sign of an affection of the windpipe. On the 15th, at midday, I heard a rough barking cough, which changed into a slight bronchial cough after drinking water. The respiration seemed to be normal; the pulse was from 100 to 104. The mother told me that he had expectorated the day before a large portion of a skin-like substance. I touched his throat thoroughly with a solut. of nitr. silver (℥j to ℥j). Towards evening, at six o'clock, the little patient, after expectorating some large pieces of pseudo-membrane of a white color, spotted with blood, had a severe strangling attack: yet a short time after I found him comparatively easy, without difficulty of breathing, his pulse 84. The membranous exudation consisted, under the microscope, of a large quantity of cells and coagulations, presenting the appearance of cellular tissue. I gave him a few powders of ipecac., which produced vomiting, though no other pseudo-membrane was ejected.

During the night, which he passed quietly, he took senega and squill. On the 15th, in the morning, I found a normal respiration, pulse 80, great difficulty in swallowing, no appetite, tongue thickly coated, the tonsils covered with pseudo-membranes. I touched his throat again with a solut. of nitr. of silver, continued the gargle of senega and squills, and gave him chloride of iron. In the evening he expectorated again pseudo-membranes.

The 17th, in the morning, the same difficulty in swallowing, 36 inspirations per minute, pulse 80, mucous râles in the lungs. In the evening, over 40 inspirations, a strong mucous râle in the tissue of the lungs, the pulse 104, easily compressible.

The 18th, in the morning, at 5 o'clock, after vomiting several times, the patient became very weak, his pulse very irregular and small, and he died at 7 o'clock of asphyxia.

During the whole disease I had tried to keep up the strength of the patient by nourishing broths.

Post-mortem examination was made 15 hours after death by Dr. Packard, whose report is as follows:—

Autopsy on Dr. Keller's patient, made April 19, 1860.

Thorax and abdomen only examined.

The epiglottis and the larynx generally were thickened; the respiratory mucous membrane reddened; the larynx, trachea, and bronchi, were lined with a tube of false membrane, which began in the pharynx and extended into the smallest traceable ramifications of the air-tubes. The lungs were œdematous, not very crepitant, but floated in water; the left pleura presented very extensive adhesions at its lower part, the right only a few; the right lung was more congested than the left. The left lung was divided into three lobes.

The right auricle was full of clots, dark and soft, like currant jelly; the right ventricle was also full of clots, white, firm, and adherent at the anterior part near the apex, but elsewhere dark and soft. These clots extended into the pulmonary artery and its branches, becoming paler and firmer towards their termination. The left ventricle less distended, but with a clot of the same kind; a long, pale, firm cord passed down the aorta; the left auricle was not much distended.

The liver was very large, firm, but not much altered in color, and apparently healthy. The stomach was distended with a greenish liquid,

turbid, with yellowish flakes, and presenting a good many shreds of mucus. Other abdominal viscera healthy.

The appendix vermiformis was at least six inches in length.

Case II. *Diphtheritis without Affection of the Larynx and Bronchi.*—Mrs. Jac. K., 31 years of age, of a very nervous disposition, was attending her son, affected by diphtheritis, from the 9th to the 18th of April, 1860, when she felt, immediately after his death, pain in her throat. On examining in the morning, at 9 o'clock, I found a small spot, not larger than a millet seed, on the upper edge of the right tonsil. The mucous membrane was reddened, and secreted more mucus than usual. I ordered citrate of magnesia, and a gargle consisting of a decoction of white oak and alum. On the 19th Dr. Packard saw the case with me. The patient experienced a great deal of pain in swallowing, and we found both tonsils covered with pseudo-membranous exudation, and at the same time secreting a great deal of mucus. She complained of pains in the extremities; her pulse ran from 100 to 120. I applied the nitrate of silver in substance, and ordered her brandy and broths for nourishment.

On the 20th the white exudations had spread over the surface of the fauces as far as I could see down the throat. The secretion continued. Diluted Labarraque's solution was used as a gargle. On the 22d, the pain in the throat was intense. On the 23d the root of the uvula began to get covered with the exudations. I applied a solution of nitr. of silver (ʒj to ℥j). On the night of the 24th the patient slept for the first time. The mucous membrane around and under the exudation was readily detached and easily made to bleed.

On the 25th, the patient had a good night's rest, the fever had disappeared, the pseudo-membranes were diminishing; and there remained, on the 10th of May, only a small spot on the anterior surface of the uvula.

Dr. Keller further spoke of a case which had come under his notice in which diphtheritic inflammation had first occurred in the vulva, and afterwards attacked the larynx by metastasis. He also remarked that the German population was especially liable to diphtheria. He was in the habit of relying much on blisters in the treatment of the disease, and he had had occasion to observe that those cases in which the blister showed a tendency to heal were more likely to prove fatal than those in which the blister ran freely.

Fatty Degeneration of the Kidney—exhibited by Dr. Livezey.—Henry McAnally, æt. 46, born in Ireland, was admitted into the Pennsylvania Hospital on the 7th of April, 1860. He was a farmer, who had always enjoyed good health until about two months ago; about which time he got wet and took a severe cold. He complained of his feet feeling very cold, and two or three days after he noticed that they were swelled, which swelling rapidly increased until it reached the abdomen, when he found that his urine had diminished in quantity.

About a week before his admission, he perceived that his left hand and arm were slightly œdematous; and he complained of an irritating cough, with some dyspnœa.

The day after his admission the following note was made of his case: Percussion clear over the upper part of the chest, both anterior and posterior; not so clear at the lower part posteriorly; and on the right side dull. Upon auscultating the patient over the upper and posterior part of the chest, respiration is found distinct, and louder than normal. Over

the inferior angle of the scapula, on the right side, is heard a loud friction sound, with bronchial respiration; these sounds are also heard on the other side, though not so distinct. Over the base of the lungs respiration is very faint, on the right side scarcely perceptible. Anteriorly bronchial respiration is heard throughout. Heart sounds louder than natural, but the impulse very feeble. Below the clavicle, on the left side, and apparently beneath the pectoralis major, appears a swelling, extending into the axilla, and impeding the venous circulation in the arm. This was first noticed by the patient about a week ago, and has slowly increased in size.

The patient passes very little urine; sp. gr. 1009; very albuminous; under the microscope was seen a quantity of epithelium, with some oil, but no casts.

Treatment.—To have stimulants, with infusion of juniper berries and cream of tartar, and warm bath and morphia at night.

10*th.* Says he feels a little better; slept pretty well last night; has passed about three quarts of urine during the last twenty-four hours.

12*th.* Examined the urine passed the night previous and found it to contain more albumen, and with fibrous casts containing granular matter, and some epithelium. The patient passed a restless night, and this morning was found to be slightly delirious; he died about noon.

Post-mortem examination eight hours after death.—Rigor mortis slight; whole body very œdematous; considerable discoloration of the skin over the left breast, from passive congestion. Upon dissecting up the tissues of the breast on that side, a large abscess, containing about half a pint of sanious pus, was found beneath the pectoralis major, extending into the axilla, and from the clavicle downward to the eighth rib. Upon opening the chest, a large quantity of clear limpid serum was found in both pleural cavities, rather more upon the left side. The left lung was free from adhesions, and appeared healthy, except at the apex, where posteriorly was found a small quantity of chalky deposit, in isolated spots; near the middle and posterior part of the right lung were some pleuritic adhesions. The lung was very much congested, apparently in the first stage of pneumonia, the lower lobe was consolidated, with two small abscesses near the base of it.

Heart.—Small and firm, with a firm clot in right auricle, extending into and interwoven with the chordæ tendinæ of the right ventricle, and supposed to be of ante-mortem formation. No clot in the left auricle or ventricle. Valves healthy.

Liver.—Fatty, with right lobe mammillated; left lobe small.

Kidneys.—Large, firm, and waxy; right one having an old cicatrix in the upper and posterior part; the cortical portion presenting a granular appearance. Thin sections, under the microscope, showed waxy casts, some free, and others within the uriniferous tubules; some of the tubes were also seen contracted and destitute of epithelium, others filled with epithelial cells containing oil.

Spleen.—Slightly enlarged and very soft. Other organs healthy.

Hourglass Contraction of the Stomach with Thickening and Constriction of the Pylorus—presented by Dr. LIVEZEY.—Ann Gallagher, æt. 40, a patient in the Pennsylvania Hospital, died April 22, 1860, of phthisis.

Post-mortem examination ten hours after death.—Rigor mortis well marked. Upon opening the chest, pleuritic adhesions were found on both

sides. In the right lung were large masses of softened tubercle, and an abscess in the lower lobe.

At the apex of the left lung was found a large cavity, communicating with two or three smaller ones, with tubercles scattered through the lower part of the lung.

Upon the external surface of the heart were two large patches of lymph, but not adherent to the pericardium, and no signs of inflammation of that membrane; valves of the heart healthy. On opening the abdomen the stomach was found very much enlarged, with the pyloric extremity extending below the umbilicus, and presenting a distinct hour-glass contraction, at about one-third the distance from the pylorus. The duodenum was doubled upon itself, and situated behind the constricted portion of the stomach. On attempting to pass a stream of water from the stomach through the pyloric orifice it passed very slowly, and on opening the stomach found the pyloric valve very much thickened and constricted—the opening being only about one-fourth of an inch in diameter. The liver and kidneys healthy. The patient had presented no symptoms which would have directed particular attention to the stomach, while in the hospital.

Abnormal Position of the Right Kidney; Dilatation of the Heart.—Exhibited by Dr. Packard, for Dr. William R. Dunton. Joseph Thompson, æt. 45, a native of England, following the occupation of a news-carrier, had enjoyed good health until the 26th of December, 1859. At this time, in attempting to make a public speech, his voice became husky, and he was unable to continue. His breath now became short, and he began to cough and expectorate; he noticed also a failure in his appetite and strength.

These symptoms increased so rapidly, that he soon after obtained admission into the Pennsylvania Hospital, where he remained more than two months; but his condition was not materially improved during that period. Having left that institution, he came under Dr. Dunton's care on the 31st of March, 1860.

At this time there was bulging of the præcordial region; the heart's impulse was very faint, and the apex-beat at a lower point than normal; the area of percussion-dulness large; the first sound of the heart was very feeble, but no murmur could be heard. Coarse râles were perceptible over both sides of the chest, anteriorly as well as posteriorly.

His lower extremities, penis and scrotum, became very much distended by serous effusion, and gangrenous spots eventually appeared upon them. His urine was highly charged with albumen.

On the 19th of April he died.

The *post-mortem* examination was made the next day, with the assistance of Dr. Packard.

Thorax and abdomen only examined.

Both lungs a good deal congested, but mainly at the posterior part, from position. Extensive and very firm adhesions of the pleura covering the lower two-thirds and base of the right lung; very much slighter adhesions of left pleura, in which there was some serous effusion.

Heart very large; pericardium healthy. All the cavities were dilated, and the walls universally thickened, but not to an extreme degree; those of the left ventricle, and the septum ventriculorum, were about three-quarters of an inch in thickness. All the valves were healthy, although some atheromatous deposit had taken place about those of the aorta. The clots

in the cavities, and in the vessels generally, were dark and like currant-jelly, except at the anterior part of the right ventricle, where a whitish firm clot was adherent to the wall, and entangled in the columnæ carneæ; it extended some little distance into the pulmonary artery.

The aorta and its branches, as far as they could be traced, were atheromatous; the veins everywhere healthy.

The liver was very much enlarged, and closely adherent to the under surface of the diaphragm; it contained a good deal of blood, but seemed to have undergone no morbid change. On its under surface, in a rather deep fossa, lay the right kidney; its long axis was horizontal and antero-posterior, and the supra-renal capsule lay at its posterior extremity; the peritoneum formed a suspensory ligament at each long border of the kidney, the two meeting at the apex of the capsular organ.

The other kidney lay in its normal position, and, like its fellow, was small, but seemed healthy. In the supra-renal capsule of this side (the left) was what looked like a blood-clot of some age; both capsules seemed larger, more solid, and more lobulated than usual.

All the other abdominal viscera were healthy.

REVIEWS.

Art. XIII.—*Therapeutics and Materia Medica: A Systematic Treatise on the Action and Uses of Medicinal Agents, including their Description and History.* By Alfred Stillé, M. D., late Professor of the Theory and Practice of Medicine in the Medical Department of Pennsylvania College, &c. &c. Philadelphia: Blanchard & Lea, 1860. In 2 vols. 8vo. pp. 813, 975.

Among the various methods of writing a work on therapeutics and materia medica, two stand prominently out as the best. One gives the results of original research and experiment; the other, without much or any original investigation, presents the results of compilation and comparison. The former is an endeavour to enlarge our knowledge, in the direction of therapeutics, by detailing original experiments and observations that go to fix, with greater or less exactness, the laws of the action and uses of medicines. The latter aims at the same object, by comparing and analyzing the experiments and observations of others. This is not the place to inquire which of these two methods of investigation demands the highest order of talent, or which renders to science and art the largest service. Both require abilities, which, though widely different, are such as few are gifted with; and both require, in addition to these natural gifts, a patient industry that flags under no labour, and a courage that fears no task. These two methods of investigation are complements of each other. Both render to medicine an indispensable service. In works, like that of Briquet on cinchona and its alkaloids, of Becquerel on electricity, of Quevenne on iron, and to a considerable extent that of Mr. Headland on the action of medicines, we have examples of the first of these methods of investigation. In the work whose title we have placed above, we find an excellent example of the second.

By thus distinguishing the elaborate treatise of Dr. Stillé, on therapeutics and materia medica, as a sort of compilation, we mean no disparagement of its merits. We simply define its position. We only assign to it its place. Indeed, as we have already intimated, it would be difficult to decide who renders the largest service to science, the original investigator, who extends the area of our knowledge by personal experiment and observation; or the conscientious scholar, who patiently collects the records of other's labours, carefully sifts the wheat from the chaff, and with judicial impartiality selects what is of greatest value from their opinions and their facts. This is what Dr. Stillé has attempted; and this he has accomplished with singular success. By styling his work a sort of compilation, therefore, we do not mean that he has simply quoted the opinions and experiments of a great variety of medical authorities, bringing them into a confused juxtaposition, and so patched up or woven together a new medical book. We do not mean this. We mean that his treatise is the result of a patient, laborious, intelligent, and comprehensive research into the records of ancient

and modern medicine; that it exhibits a careful collation of an immense number of facts; that it is, in short, an admirable digest of our present knowledge of therapeutics and materia medica.

Such is a general statement of what the work is. Let us now examine it somewhat more in detail.

On the title page it is described as "a systematic treatise on the action and uses of medicinal agents, including their description and history." This gives, so far as a title can, a sufficiently clear notion of the contents of the work. But the title is somewhat too comprehensive. Medicinal agents include a large number of remedies beside drugs. "Foods," says Dr. Chambers, "when administered to a sickly body, with the intention of restoring health, are medicines." The truth of the statement is too obvious to be doubted. Not only foods, but many other agents, that cannot be found on the druggist's shelves, become in the hands, or by the direction of a rational physician, medicines. These, from the title of "medicinal agents," we might expect to find discussed in Dr. Stillé's work. They are not. His treatise is concerned almost wholly with drugs. In his introduction he refers to the remedies alluded to, which he has not described, and gives his reasons for excluding them from his consideration. His reasons are valid enough, but they do not make the title of his work any more definite. This, however, is a small matter, and we are not disposed to quarrel about it.

The two volumes open with an introduction of one hundred and twenty-four pages. In this part the author treats of the sources of our knowledge of therapeutics; the *modus operandi* of medicines, including their absorption, and their physiological and therapeutical action; the various methods of administering drugs, the circumstances which modify their action, and the art of prescribing. The introduction concludes with an account of the author's classification. These matters are necessarily treated with great brevity. A discussion of them forms an indispensable preparation to any careful study of the materia medica, and we only regret that Dr. Stillé did not enter somewhat more fully into an examination of some points which he has barely touched upon. We refer particularly to the sort of changes, which drugs are liable to undergo after absorption; the new combinations, which it is possible for them to enter into in the human system; the varying periods of their stay in the blood or tissues; the processes of elimination; and, in short, the laws which govern the progress of a drug, after its introduction into the system, until its final departure through some of the secreting organs or membranes. These are all practical matters. It is true that they are poorly understood at present. Our knowledge in this direction is limited. Yet whatever is known, or can be hinted at, should be presented to the profession. Dr. Stillé is evidently qualified for the task.

The main body of the work is, of course, devoted to a description of medicinal agents. These the author brings together "in groups corresponding to their sensible operation upon the economy," and thus forms his classification. Twelve groups or classes are made to comprise all the agents he examines. Beginning with lenitives, or "medicines which allay local irritation," he describes in the following order: astringents, irritants, tonics, general stimulants, cerebro-spinal stimulants (narcotics and antispasmodics), spinants, general sedatives, arterial sedatives, nervous sedatives, and alteratives. Classification belongs to the opprobria of writers on materia medica. From the medicamenta of Celsus to the esstomatics, ecbolics, adenagics, etc., of the learned Dr. William Tully, writers have ex-

hausted their ingenuity in classifying remedies. Probably no satisfactory classification, in the present state of our knowledge, is possible. That of Dr. Stillé, which follows the most ancient models (with slight variations), is perhaps as good as any. At any rate, he has disarmed criticism with regard to it, by the frank admission that "in presenting this arrangement of the materia medica, the author is not only aware that it is obnoxious to criticism, but he is quite alive to its numerous defects." We will only express our regret, therefore, that he has retained the term alterative, which carries with it no definite meaning whatever, as the name of a class. If he had substituted for it the word unclassified, the term would have had, at least, the merit of hinting at no theory, and thus have been open to no misconception. And if, moreover, the group of unclassified had been enlarged, so as to contain certain agents, such, for example, as electricity, oil of turpentine, water in varying temperatures, ergot, and others that might be mentioned, he would not have been obliged to drive these into classes, which they do not willingly enter, and where their resemblance to their companions is by no means remarkable. We think a change of this sort would contribute to the simplicity of his classification, and to its practical value. Judged from a practical point of view, any classification is certainly unfortunate, which compels a writer to ignore anæsthetics as a separate class, to put into the same group chloroform and the sweet spirits of nitre, and to divorce the carbonate from the bicarbonate of potassa.

The description of the individuals of each class is preceded by some general remarks on the characteristics of the group. In some instances, as in the case of general sedatives, these prefatory remarks occupy only the brief space of two small pages. In other cases, as in the preface to irritants, they reach the extent of seventeen or eighteen pages. They are always pertinent to the matter which follows, and reward a careful reading of them. We refer to them, because prefaces of this sort are too often passed by carelessly, as of little value. In reality, they generally point out the pith and core of the succeeding pages, and the reader should use them, as travellers do a guide, to show where what is best and rarest can be found.

The real value of a work, like the one under consideration, depends, on the whole, however, upon the manner in which each individual article is treated. And it is here, more than anywhere else, we think, that the excellence of Dr. Stillé's treatise is manifest. It was not without design, we presume, that in its title therapeutics was made to precede materia medica. For each article is discussed from the stand-point of the former, and not from that of the latter science. We are told in the preface that—

> "The strictly scientific portion of the subject embraces the consideration of medicines in their physical, chemical, and physiological relations. Of these, the first and second are described so fully and accurately in works, which rank as medical classics, that it seemed unnecessary to discuss them at length in a treatise, whose point of view is rather at the bedside of the sick, than in the laboratory or the lecture-room."

Accordingly, the physical properties and chemical relations of drugs are described with great brevity; while their physiological action, on animals as well as on man, are examined with care, and oftentimes at considerable length. Next follows an account of their therapeutical value and applications.

This is as it should be. The only proper way to study that portion of therapeutics, with which drugs are concerned—the only way by which any

sure advance can be made in a science, involved in so many complex relations as therapeutics—is to study, first and accurately, the physiological action of medicines on the animal and human system. In their physiological action is to be found, not always a sure indication, and sometimes no indication at all, for their remedial employment; but the best and safest guide for their management, for their exhibition in the diseases to which they are applicable. Thus, from the physiological action of quinia, in large and small doses, from its powerfully sedative influence over the nervous system and the heart, from the changes which it induces in the blood, from the rapidity of its absorption, and the facility of its elimination, and the ratio of elimination to absorption, we could not infer its value in periodical and pyogenic diseases. Yet, when clinical observation has demonstrated the latter, or its therapeutical value, we get from the former, or its physiological action, a perfect guide for its administration. Its physiological study reveals the art of its administration, and hints significantly at its *modus operandi*. Any writer on materia medica, at the present day, who, in describing cinchona and its alkaloids, should omit its physiological action, would be guilty of the gravest neglect. Now, what is true of cinchona in this respect, is true, to a greater or less extent, of every article in the Pharmacopœia. And hence the importance of restudying, with all the aid that science can lend, most of the articles which form the *armamenta medicorum*. Dr. Stillé's treatise bears ample evidence that he is fully aware of the importance of doing this. In every instance, and we do not remember to have noticed an exception, he has given the latest results of European and American observers as to the action of the articles, which he describes on animals and men in health. When this has been given, then follows in due order their remedial employment. If, in the case of many articles, only a meagre account of their physiological action can be found, this is owing to our present imperfect knowledge, and not to any negligence on the part of the author. It is because we are still sadly ignorant with regard to many drugs, that we are daily using at the bedside.

We have been gratified at finding the medical history of each drug, or what might be termed its biography, presented to us by way of introduction to the physiological action just alluded to. The history of an article, which a physician employs, is not only a matter of interest to him; it is often of great utility. The method by which a medicine is introduced to the profession; its sudden or gradual reception into favour; the various changes to which it has been subjected from one age to another; the different names by which it has been known; the different purposes to which it has been applied; the different virtues which have been ascribed to it; these, and other matters connected with the history of a drug, are important, not merely because they are curious in themselves, but because they serve to guide the practitioner oftentimes in his selection and use of remedies. We think Dr. Stillé was wise in devoting a portion of his work to this subject. In doing so he has given us much curious and valuable matter, and always in an attractive form. As an illustration of what we refer to, and a fair example of the author's style, we take pleasure in quoting a portion of his account of the history of an article, comparatively new to American physicians, the cannabis Indica. We learn from him, that

"The Chinese were acquainted with hemp, as an anæsthetic, as early as the third century of the Christian era. According to Stanislas Julien, a celebrated Chinese physician, named Hoa-Tho (A. D. 220), operated on his patients, after having rendered them insensible by means of a preparation of wine and hemp

powder (Martius), or, adopting another version, by means of hemp alone. Then, according to the case, he made openings and incisions, performed amputations, and removed the cause of mischief; he then brought together the tissues with points of suture, and applied liniments.

"About the eleventh century of the Christian era, there arose in Persia the famous sect of the Assassins. The persons held to be worthy of membership in this bloody community were subjected to the most seductive impressions, while under the influence of the haschisch, and led to believe themselves the chosen instruments of a supernatural power. The chief of the sect alone possessed the secret of its use. The novice was invited to his table, and there intoxicated with this substance. He was then carried into a delicious garden, where he enjoyed, as a foretaste of heaven, all those sensual and enervating delights which the Prophet has promised to his followers. At last, overcome by them and the narcotic influence of the drug, he was removed to his former situation, and on awaking was persuaded by his wily tempter, as well as by his own recollections, that he had partaken of the bliss of Paradise. Haschisch was used to produce a pleasurable intoxication, a state of ecstasy, and not, as some relate, for the purpose of throwing those to whom it was administered, into a state of madness and frenzy, during the continuance of which they performed the most barbarous actions, and, running a muck, became promiscuous assassins. The derivation of the word is in this wise: Haschischa, which signifies merely plant, became the title of this, which was esteemed the most excellent or potent of all plants, and from it the name Haschischin was derived, to distinguish those who, by means of its intoxicating properties, were initiated into the mysteries of the sect. Hence the modern word assassin, has come to signify one guilty of the peculiar crime of the Haschischin. The mischievous effects of haschisch are said to have caused its prohibition in Mohammedan countries until the fifteenth century, when Sultan Ahmed permitted its use, which soon became general, and, according to the historian, brought on the corruption and degradation of the human race. Ebn Baithar states that in large doses the drug induces extreme lassitude with delirium, that its habitual use weakens the intellect in a remarkable manner, and that excessive doses produce a maniacal condition, terminating in death. Its effects were witnessed at Amboyna, by Rumphius, in 1695. He calls it herba stultorum, and says that throughout India the leaves and seeds are extensively used to dispel anxiety and excite agreeable dreams; that a maniacal state sometimes ensues; that he has known it cause, when smoked with tobacco, a frantic pugnacity in some, sardonic grins and menaces in others, and lamentations in others. Nearly the same effects are ascribed by Chardin to the immoderate and protracted use of the drug among the Persians.

"But the use of hemp to produce intoxication is not confined to the Orientals. The plant is said to be cultivated by the Hottentots for the purpose of smoking only, and it is used in like manner by the negroes of Brazil, who doubtless brought the habit with them from Africa. In Russia, Poland, and other neighbouring countries, the peasants are extremely fond of parched hempseed, which they eat upon black bread, with a little salt, and even the nobles of these regions, when hunting or travelling, find it an agreeable condiment. It is related, that remaining long or sleeping in a field of hemp has produced feebleness of sight, vertigo, and intoxication. But such power in the hemp of temperate or cold climates may farely be called in question, for the product in which the active properties of the plant reside scarcely exists beyond the regions which lie within or border upon the tropics. . . . . In 1839, attention was called to the properties and medicinal virtues of cannabis, by Dr. O'Shaughnessy, Professor of Chemistry in the Medical College, Calcutta, who had enjoyed many opportunities of studying its effects in disease, and of witnessing the phenomena occasioned by it, when used to produce intoxication. Subsequently, its virtues were tested by numerous competent observers, who made good its claims to a permanent place in the materia medica."—Vol. ii. pp. 77–80.

We should do injustice to the work not to refer to the number of authorities which the author has quoted from. In his various descriptions, and especially in his account of the physiological and therapeutical action of

each article, he has drawn largely upon the best medical literature of the world. And this he has done in no superficial manner. The author is a scholar in the best sense of that word. He is evidently familiar with the medical literature of Germany and France, as well as of England and this country, and his pages often display a knowledge of the ancients, which, we are sorry to say, is a rare accomplishment among American physicians, if we judge them by their writings. Yet there is no obtrusive display of learning in his pages. True scholarship is always modest, and Dr. Stillé's work is as free from pedantry, as it is rich with a generous culture. We know of no work on therapeutics and materia medica in the English language, where the opinions of so many and such widely different authorities can be found, placed side by side. The author has not only referred to these authorities; he has given us their views and experience. This he has done, not so much by quoting their language, as by presenting a synopsis of their opinions, crystallizing their observations upon his own pages. Particularly have we been gratified with the frequency and extent of his quotations from German authorities. The German scholars are proverbially learned. The extent of their researches and acquirements is sometimes marvellous. Their medical, like their other literature, is often burdened with learning, and it is sometimes necessary to wade through a mass of useless lore in order to get at some new fact or valuable observation. At the same time, their writers are not infrequently full of fanciful speculations, or wild theories, as if much learning had made them mad. But after making due allowance for these and other peculiarities of German medical literature, it must be confessed that it contains a wealth of observation, and an accumulation of recorded experience, which no other surpasses, and which perhaps no other equals. That such is the fact, we think has not been sufficiently appreciated in this country. This mine of wealth has been left to a great extent unexplored by American physicians. London and Paris are familiar to our students who go abroad or remain at home; while, until recently, Berlin and Vienna have been almost ignored. And, therefore, we think that Dr. Stillé has done a good service to our profession, and at the same time has largely enriched his own treatise by introducing freely into it the observations of German writers. We hope it will prove a stimulus to his readers, which shall excite them to a closer acquaintance with those to whom he has thus introduced them. We do not intend by the above remarks to imply that the author has given undue prominence to German writers, or that he has disregarded other continental, or English, or American authorities. He has quoted impartially from all. The reader is enabled to compare the opinions of the most distinguished therapeutists of this country and Europe, upon the action and value of the various articles discussed. Perhaps it is a matter of regret, that he has so often refrained from any decided expression of his own views, after he has stated those of other observers. Facts are clearly presented; opinions from the best sources are impartially given; and then the reader is left to draw his own conclusions.

There is, of course, great diversity in the description of different agents. Some are passed over briefly, while others are discussed at great length. The most important parts of the materia medica, those agents which physicians use the most frequently and largely, are carefully and fully examined. In some instances, Dr. Stillé has given so complete an account of the subject before him, as to make his description of it worthy the name of a monograph. His work, however, is not an encyclopedia of the materia medica. It does not include everything, nor pretend to do so. Much that is obsolete, many

drugs that are useless or little used, are properly left out. This method of describing with great fulness and accuracy agents of the most value, while those of less importance are either briefly discussed or altogether omitted, is doubtless the most useful one. In the main we agree with him in his selection of articles to be described. He has omitted some, whose introduction would have added to the value of his treatise, and admitted others whose absence few would have regarded. We think that a work which describes suet, isinglass, and the common dewberry, should not have excluded elaterium, and podophyllum, podophyllin, or leptandrin.

We have no desire to weary the patience of our readers by following the course of Dr. Stillé's treatise in greater detail. Yet he has described certain articles of the materia medica with such fulness and accuracy, that we feel obliged to perform the agreeable duty of directing attention to some of them.

The subject of etherization, including a description of sulphuric ether, chloroform, and chloric ether, fills a space of seventy-two pages in the second volume. We cannot speak too highly of the manner in which this important and difficult matter is treated. The history of anæsthesia is briefly and clearly traced, from its early faint foreshadowings in the natural magic of John Baptista Porta, along by many experiments of various scientific men, who, unconscious of the mighty blessing for the race which enveloped them as with a cloud, touched the great discovery and could not see it, to its birth at the Massachusetts General Hospital, in Boston, in 1846; and thence we are shown its rapid course across the Atlantic to Europe, and its spread to the bounds of civilization. The claims of the two aspirants, Mr. Morton and Dr. C. T. Jackson, to its discovery are impartially presented, and decided in a way that is doubtless more consonant to justice than to the demands of the claimants. The physiological action of the inhalation of ether and chloroform is clearly stated, and the results of the latest and most trustworthy observers are given, so as to put the student in possession of whatever science has thus far brought to light on this important subject. The therapeutical value and uses of these two agents are laid down with equal care and clearness. The inconveniences and *safety* of ether, and the great power, convenience, and *danger* of chloroform, are well presented. We are not of those who expect to see the use of chloroform, as an anæsthetic, rapidly discarded, or who believe that it should never be used, yet we subscribe heartily to the following statement of our author:—

"If we consider the minute precautions which are enforced by those who, like Dr. Snow, have had the largest experience in administering chloroform; the abandonment or rejection of it by a large number of the most experienced and judicious surgeons in the United States; the fact that the question of relinquishing it entirely has been proposed for discussion in the Surgical Society of Paris; that besides the absence of all outward sign to indicate whether the patient is fit or unfit for the use of chloroform—in some cases the fatal effect is produced by an exceedingly small dose—and that the danger bears no proportion at all, or if any, an inverse proportion to the severity of the operation, it must be admitted that the question whether its use as an anæsthetic should be persisted in is one of extreme gravity, and which it is more than probable will ultimately be decided in the negative."—Vol. ii. p. 201.

There are few drugs which physicians in this country, at least, use more frequently than quinia, or its salts. But, notwithstanding this fact, our medical men, unless we are greatly in error, know far less than they should of its physiological action. And yet its physiological action is the key to

its therapeutical use; the only safe guide to its clinical exhibition. Dr. Stillé has judiciously given a space of fifty-five pages to an account of cinchona and its alkaloids. The largest portion of his article is properly devoted to the physiological action and therapeutical use of the drug. He has quoted freely from the admirable and exhaustive researches of M. Briquet upon cinchona, and has thus conferred a large benefit upon those of his readers, who are unacquainted with the late work of the French physiologist. We will only remark, while commending Dr. Stillé's article to the careful study of our practitioners, that his explanation of the *modus operandi* of quinia does not appear to us to be "in harmony with the admitted facts of the case." We prefer that of M. Briquet.

There are other articles, especially those on alcohol, cod-liver oil, cannabis Indica, anthelmintics, cold, veratrum viride, alum, and the *modus operandi* of astringents, which we should like to do more than refer to; but our space allows only this brief allusion to them.

In describing belladonna, Dr. Stillé has examined the claim which is set up for it as a prophylactic against scarlatina, by the apostles of the infinitesimal theory of doses. The claim is by no means proven. Yet there is evidence enough in its favour to render it incumbent on the profession to investigate it carefully, and by extended and conclusive observations to prove or disprove it. It does not appear to us that the weight of evidence, which has been produced, tends to substantiate the claim, but the reverse. Still, there is some evidence in its favour, as well as much against it. The question is yet *sub judice*. More observations, and more careful ones, must be made, before a decision can be rendered. We think, therefore, Dr. Stillé has wisely called the attention of his readers to this matter. At the same time we cannot assent to the test or criterion which he lays down as a means of deciding the prophylactic powers of belladonna. After giving a supposed case, which he states would not prove anything in favour of such powers, he adds:—

"But, it is no less certain, if this substance (belladonna) were given to many families or portions of families during an epidemic of scarlatina, and, as a general rule, those who had taken it escaped the contagion, while a large proportion of those who had not taken it were attacked, it is certain, we say, that the protective powers of belladonna against scarlatina would be unequivocally proven, although the exact degree of that power might not be determined."—Vol. ii. p. 49.

We cannot agree to this. Neither do we believe that a careful observer, like Dr. Stillé himself, would agree to it on further reflection. The formula is too general. It admits too much loose observation on a question, which requires the nicest discrimination and the most exact analysis. Judged by the above, we do not doubt that hyoscyamus and stramonium would be found to make out as good a case as belladonna. It is notorious, as our author states, that "in the case of scarlatina the degree of contagiousness is not ascertained;" for many who are exposed to the contagion escape the disease. It is ascertained, however, that children take scarlatina more readily than adults; that those who are exposed to it for a long time, living in the same apartment with it, are more likely to take it than those who are exposed to it only for a brief period; that those who are constantly exposed to it, while living in close quarters and under bad hygienic surroundings, are more likely to take it than those exposed to it under opposite conditions. Dr. Stillé's formula does not recognize these modifying circumstances. If he had done so, by some such statement as the follow-

ing, it would better answer the requirements of the case. If belladonna were given to many families, or portions of families, during an epidemic of scarlatina, and, as a general rule, those who took it, being of the same age, and similarly exposed and living under similar hygienic conditions, escaped the contagion; while those who did not take it were attacked, being of the same age, and with the same surroundings, and having the same degree of exposure as those who did, then we should say "that the protective power of belladonna against scarlatina would be unequivocally proven." Judged by this rule, the observations we have met with do not favour the protective influence of belladonna. We have dwelt upon this matter at some length, because it is a most important one. It is one which, in the interests of humanity, ought to be determined, and can be, notwithstanding the difficulties which surround the problem, if competent observers would seriously set themselves to work about it. We trust that many such may be found. We know of no one more competent for the matter than Dr. Stillé, and we are sure that in making his observations he would be more exact than his formula.

We do not intend, by the foregoing remarks, to assert or imply, that no experiments have yet been made, for the purpose of ascertaining the supposed protective influence of belladonna, but only that those which have been made have not decided the question. And, therefore, we are glad that Dr. Stillé has called attention again to the subject; though we believe that a careful analysis of the observations which have been placed on record up to the present time, do not sustain the claim, but go far to disprove it; and that properly conducted observations, made on a large scale, and so managed as to avoid all sources of fallacy, would demonstrate its inefficacy. This we should rejoice to see done, or rather to see the truth established, whatever that may be.

Every close student of the materia medica, or rather every observer who devotes himself to a study of the physiological and therapeutical action of drugs, is in danger of falling into the error of regarding them as the chief agents in the cure of disease. If he does not believe them to be so, he is apt to talk and write about them as if they were. We have noticed with regret that so careful a writer and philosophical a thinker as Dr. Stillé has not altogether avoided this danger. Throughout both volumes of his treatise, he uses the word "cure," with regard to the action of the drugs he describes, as if they initiated or carried on the processes by which diseases are gotten rid of, or cured. Thus he defines medicines, in the first line of the first volume, as substances which are "used for the cure of diseases." Dryden's definition (as given by Worcester), wherein a medicine is defined to be a "substance used as a remedy for disease," is more just. Frequently does our author associate with a drug the power of curing disease, as in the following instance. He is speaking of dropsy and the iodide of potassium, and remarks:—

"Dr. Kissam, of Hartford, *cured* a case of the same description, and Bradfield one of ascites with œdema of the lower limbs by means of this medicine internally, and an iodine liniment applied to the legs. It has also *cured* similar cases in the hands of Dr. A. T. Thomson, Dr. Cumming, Dr. Stokes, and others. Dr. Sieveking *cured* hydrothorax, etc."—Vol. ii. p. 899.

We do not mean to be hypercritical, and we do not think we are, in objecting to this sort of language. It encourages a serious and widely-extended misconception of the powers of medical science, and the true position of a physician. This misconception of a physician's relation to disease exists

in the profession as well as out of it, though we rejoice to believe that it is found more among the laity than elsewhere. We need not attempt to prove the inefficiency of drugs in controlling diseases. Every rational and philosophical student of disease knows that the processes, by which the economy expels it, may be aided by drugs, but that the latter are not generally the chief agents or even assistants in so doing. In other words, the physician does not hold in his hands the power of curing disease. He is not responsible for the result of a malady whose course he superintends. His position is that of a guide over a road which the traveller must go; of a counsellor in difficulties which must be met, and which may kill; and not that of a mechanic who engages to repair a machine, or of an architect who builds anew. Yet the latter is the common notion, utterly false as it is. This notion is kept alive, to a considerable extent, by the way in which the word cure is used; not in its etymological sense of *cura*, the cure of disease, but in a secondary and false one, which implies the existence of mysterious and occult powers in physicians and their art. It would add to the dignity, and enhance the usefulness of our profession, if the supposed power of drugs to cure infirmities could be exorcised out of the human mind. Language, which keeps such a notion alive, is to be regretted, and especially when it falls from the lips of a wise teacher and profound scholar.

It is now time to bring this notice to a close. We have already extended it beyond the limits we assigned to it, when we took up our pen, and we fear that we have trespassed upon the patience of our readers in not reaching a conclusion sooner. And yet we have left untouched many points which we wished to discuss. If, however, we have succeeded in drawing the attention of any of the profession to Dr. Stillé's treatise, we have done them a substantial service. We commend it heartily to them, as one of the best works on therapeutics and materia medica in American literature, and which will compare honourably with similar works in any language. Dr. Stillé was well known, before the appearance of this treatise, as a scholar and observer; this will add to his reputation both at home and abroad. It fills an important place among works on therapeutics, and we hope it will be largely studied. None can read it without advantage. We may add that its clear and simple style is not one of its least merits. In these days, when there is such a tendency to fine writing, it is delightful to come across an author who is not ashamed to use good old Saxon English; who can crowd a book full of learning without pedantry; and who evinces equal scholarship and modesty.

The typographical execution of both volumes is excellent. It is perhaps needless to mention this, for the name of the publishers is a guarantee that whatever types and paper can do to commend the book to the reader has been done. A copious index, both of diseases and of drugs, closes the second volume. The student will find the arrangement of foot-notes an exceedingly convenient one for reference to the numerous authorities which the author has cited. E. H. C.

ART. XIV.—*A Practical Treatise on the Diagnosis, Pathology, and Treatment of Diseases of the Heart.* By AUSTIN FLINT, M. D., Professor of Clinical Medicine, etc., in the New Orleans School of Medicine; Visiting Physician to the New Orleans Charity Hospital; Honorary Member of the Medical Society of Virginia, of the Kentucky State Medical Society, of the Medical Society of Rhode Island, of the Pathological Society of Philadelphia, etc. Philadelphia: Blanchard & Lea, 1859. pp. 473, 8vo.

IT is a tradition in one of our medical schools that one of its most distinguished graduates, who received his diploma nearly twenty-five years ago, presented a dissertation on diseases of the heart, and took for the motto of it a text of Scripture: "The heart is deceitful above all things." And yet at that time the subject had attracted attention, and distinguished pathologists of different countries had recently published the results of laborious investigations. The clinical treatise on diseases of the heart by M. Bouillaud, the Professor of Clinical Medicine of the Faculty of Medicine of Paris, had just appeared. The second edition of Dr. Hope's "Treatise on the Diseases of the Heart and Great Vessels, comprising the Author's View of the Physiology of the Heart's Action, as demonstrated by his Experiments in 1830; and an Appendix of his Experiments in 1834–5 on the Sounds, which have since been repeated by a Committee of the British Association," was published in 1835. M. Bouillaud, in the preface to his work, sketches the history of what had been done and said in the department of the anatomy, physiology, and pathology of the heart and the circulation. He speaks of the labours of Vesalius, of Nicolas Massa, of Charles Etienne, of Baillou, Lancisi, Valsalva, and Albertini, of Morgagni, and of Senac. He thus comes to the time of Corvisart, of whom he says that he left far behind him all his predecessors. A new epoch is said to have commenced with the publication of the essay on the organic diseases and lesions of the heart and great vessels. In the editor's preface to that work it is said that "such a work must throw great light upon a class of diseases *very little* understood, though quite frequent; it must manifest the numerous mistakes which have been committed by a vast number of physicians, both ancient and modern." Now, we must express some surprise that no allusion is made to Harvey, in this connection, by either of these writers. Both dwell on the importance of anatomical and physiological researches. Monsieur Bouillaud tells us that since the time of Bichat, Dupuytren, and Corvisart we have a remarkable instance of great progress made in medical science, because of the intimate union between anatomy and physiology and pathology. Broussais is spoken of as the worthy successor of Bichat and Corvisart, in establishing the intimate relations of these sciences. The following passage from Corvisart is quoted:—

"It would be a great mistake to believe that mere pathological anatomy is sufficient for the diagnosis of organic lesions. The physician who does not join physiology to anatomy may be a very skilful, industrious, and patient dissector; but when called upon to treat disease, his practice will be wavering and uncertain. How many mistakes have I seen made at the bedsides of patients! Disease attributed to the stomach or to the liver, when the heart or the lungs were the suffering organs; and these organs declared to be the seat of disease, when the lesions were confined to the abdominal viscera, by persons possessed of a good

knowledge of anatomy, but whose acquaintance with physiology was limited and imperfect. And Broussais, in the preface to the *Examination of Medical Doctrines*, says, emphatically, 'the characteristic features of diseases can be appreciated and laid hold of only through a good knowledge of physiology.'"

Now, with such an appreciation of the importance of anatomy and physiology to successful pathological research, how does it happen that, in mentioning the names of those by whose labours the knowledge of diseases of the heart has been advanced, that of Harvey does not appear? By his own researches—by appreciating and putting in their proper connection the discoveries of others—a correct account of the circulation was given, and then only was it possible to lay the foundation of the pathology of the heart and its vessels. We have no space here to notice the views taken by some of what had been done by the immediate predecessors and contemporaries of Harvey, leaving but little to him in perfecting what really was their work. We would refer to a very excellent article in the number of this journal for January. The name of Harvey has been and must be intimately associated with the knowledge of the heart and the bloodvessels. Where can we now find a better description of the circulation, and of the movements of the heart, than is contained in his work? In the treatises of M. Bouilland and of Dr. Hope the first chapters belong to the department of anatomy and physiology. What does the heart, how and why does it move? These are the first questions with modern pathologists. The subject has been thoroughly reviewed by them, and with the effect of establishing the correctness and truth of the descriptions given two hundred years ago by him who well may be called the immortal Harvey. The French have been said to appreciate imperfectly whatever is done and said out of their own country and its capital; and we must regard this omission to mention Harvey's name in the works of two classical French authors on diseases of the heart, in both of which the true place is assigned to anatomy and physiology—that of being at the very foundation of pathology—as proof that the assertion has not been rashly made. We ourselves, living at a distance of three thousand miles from the arena of Harvey's life and labours, and with an interval of two hundred years, yet may be thankful to claim the affinity of race and country with so distinguished a man. And we cannot undertake the review of the work of our countryman and contemporary without magnifying the fame of one who may be said to have laid the foundation for all subsequent pathological researches. And we must note, too, the long interval between the acknowledgment of the truth of Harvey's results—between their general reception and the advances in pathological knowledge made by Corvisart and Laennec. Harvey recognized the sounds of the heart in 1628; Laennec called attention to their modification by disease in 1817; Monsieur Bertin's work, edited by M. Bouillaud, was published in 1824; and each subsequent year has brought researches and investigations which have been instigated by the successful results of the labours of those whose names we have just mentioned. A brief, condensed, but useful history of what has been done and written during the last forty years in cardiac anatomy, physiology, and pathology would be very interesting. England, France, Germany, Italy, and our own country have all brought forth zealous and successful labourers in this field; and the results and views and opinions of scientific men living so widely apart might be so arranged, classified, and compared as to make an interesting chapter in psychology. Dr. Flint's book is what it professes to be, a practical treatise on the diagnosis, pathology, and treatment of diseases of the heart. He tells us in his preface that—

"In the preparation of this volume the aim has been to meet the wants of the medical student and practitioner, by the production of a work devoted exclusively to diseases of the heart, and treating concisely but comprehensively of these diseases, with reference to their diagnosis, pathology, and treatment."

A little further on he says:—

"In writing the book, the end which the author has kept steadily in view is a fair and full exposition of our present knowledge of the diagnosis, pathology, and treatment of diseases of the heart. Recognizing clinical study as the great source of this knowledge, he has endeavoured to make the cases reported by trustworthy observers, together with his own recorded experience, the basis of the work. Having long been in the habit of making records at the bedside, and having given for several years particular attention to diseases of the heart, he has accumulated notes of about two hundred cases of the various cardiac affections. The results of an analysis of these cases have been before him during the composition of the work. As a preliminary step, also, over one hundred fatal cases, gathered from different authors, chiefly from the works of Hope, Stokes, Andry, and Blakiston, were subjected to similar analysis. On the data thus obtained have been based, in a great measure, the statements and opinions which the work contains, endeavouring, however, not to introduce details and statistics to an extent to prove repulsive or fatiguing to the reader."

Dr. Flint is to be commended for his distinct recognition of the two sources of knowledge—the use of one's own powers of observation and reflection, and an acquaintance with what has been observed and thought by others. We must observe and think for ourselves in order to appreciate what is related by others, the fruits of their observation and reflection. There have been a great many observers and thinkers in this department of diseases of the heart, and Dr. Flint is well acquainted with the writings of many of these. He does not, however, refer as much to what has been said and done by French and German pathologists as to those of England and our own country, nor does he appear to have as well digested the results of their labours, the records of their opinions. Having constantly in view the wants of the medical student and the every-day practitioner, he has not been able to make it a thoroughly scientific treatise; of which, we think, however, there is a great want at this present time, and which our author seems to us well qualified to supply. Such books are not popular, and find few readers. They are the basis, however, of a lasting reputation. They take a place in the permanent annals of science, whilst popular and practical treatises, widely circulated and read in their own day, are destined sooner or later to be replaced by new works of a similar character, in their turn to be disregarded and forgotten.

Dr. Flint arranges his subjects with reference to the student and practitioner. He begins with enlargement of the heart, which generally is the result of causes long in operation, consequent upon other diseased processes, which have not been so appreciated by the patient as to induce him to ask medical advice. In hospitals and in private practice, cases of hypertrophy of the heart often present themselves. In our studies and researches we start from this point and go back to causes which frequently are diseases that may be referred to inflammatory or other processes. Most authors have first considered these affections. The history of pericarditis and endocarditis—in the works of Messrs. Bouillaud and Hope, and Stokes—the lesions of the valves—are first set forth, and it is shown how they give rise to hypertrophy and dilatation of the heart. These two affections are very properly considered together by Dr. Flint, in the first chapter on enlargement of the heart. The average weight and size of the healthy heart, as

deduced from the researches of Bichat, Bouillaud, Ranking, Gross, and others, is first given, and then hypertrophy is taken up. We find an exact account of the situation and anatomical relations of the heart, deduced from an examination of dead bodies, and then it is shown how to ascertain the size of the heart during life. Attention is called to the superficial cardiac region, and to the deep cardiac region, and the student is told how to map out these two regions on the thoracic walls. Dr. Flint's own researches and those of Drs. Camman and Clark, establish the average extent of modified resonance during life, and thus form an important basis for the diagnosis of enlargement of the heart. The student is properly told that the ability to distinguish between hypertrophy and dilatation by the percussion-sound is more than questionable. Some remarks follow on the altered situation and extent of the apex-beat, and original researches on the centre and size of the area in which the impulse is felt, with the variations as the patient may sit up or lie down, are very valuable. In remarks on the mechanism of the heart's impulse, the proofs that the heart is not shortened during the systolic contraction of the ventricles by an approximation of the apex towards the base, from the researches of our own countrymen, Drs. Pennock, Moore, and Dalton, are brought forward and seem to us conclusive. The signs of enlargement and hypertrophy from the situation of the apex-beat, and impulses felt in other situations than over the apex, are well considered. The student is shown that he must not confound hypertrophy with inordinate activity of the heart—how to distinguish organic from functional disease. The abnormal modifications of the heart-sounds in hypertrophy are next considered. Here our author discusses the mechanism of the sounds of the heart, and refers to a fuller exposition of this subject in his prize essay on the clinical study of the heart-sounds in health and disease. This essay we look upon as a valuable contribution to science. It contains the results of original investigations leading to important results. The difficulty of distinguishing disease of the different valves where four of them are continually opening and shutting, is very great. And physiologists are not yet agreed as to the cause of these sounds, so much is rapidly taking place—auricular contractions and dilatations; ventricular contractions and dilatations; opening and closure of auriculo-ventricular valves; opening and closure of arterial valves; entrance and exit of blood from four cavities. How many of these operations are attended with sound? When Laennec called attention to the sounds of the heart, and to their modification as signs of disease, he proposed a truly difficult problem, and how many experiments have been undertaken, how much has been written in attempts to solve it! Laennec did not comprehend and describe the action and sounds of the heart, as they are now established. He appreciated the first sound as isochronous with the contraction or systole of the ventricles, but he referred the second sound to the same period with the contraction of the auricles, and he placed the silence of the heart as between the auricular and ventricular systole. He speaks of the two sounds, of the one as the sound of the auricles, and of the other, as the sound of the ventricles. M. Andral thinks that he does not say that the sounds are *dependent* on muscular contraction. Has muscular extension or contraction anything to do with these sounds? This is a question to which we find various answers, and which is an important one when we are seeking for signs of hypertrophy from the sounds of the heart. Dr. Flint speaks of the mixed nature of the first sound. He has

carefully examined the sound in health as well as in disease. He says properly—

"The results of accurate examinations of the healthy chest form, of course, the true and only basis of the clinical study of the normal heart-sounds. Scientific discovery requires, in addition to a competency for such examinations derived from a practical knowledge of physical exploration, sufficient carefulness of observation, and, also, that the facts observed be recorded and preserved in a form to admit of analysis. In pursuance of this plan for accumulating data for the investigation, I selected twenty-five persons presumed to be entirely free from cardiac disease. As evidence of the latter indispensable qualification, all the physical signs of disease of the heart were wanting, and, as an additional security, none had ever experienced an attack of acute rheumatism, or suffered from any grave affection of the chest. All were males, in perfect health, and, with a few exceptions, were between the ages of twenty and thirty. The examinations were leisurely made. In no instance was an examination of more than one person made at a time, and, repeatedly, the examination occupied two sittings. In part, the twenty-five examinations were made at different times, extending over a period of a year. The facts observed were invariably recorded at the moment of the examination. In all the examinations save three, I was assisted by a friend equally interested in the investigation, and an expert in physical exploration, by whom the accuracy of the observations was confirmed before being recorded."

We have cited this passage as showing how thoroughly and carefully our author has studied the subject. He has thus made a permanent contribution to science in carefully recorded experiments, to show the variations of the sounds of the heart, as heard over different parts of the chest, the two sounds being compared with each other. He thus comes to several conclusions; one of which is that the first sound of the heart is a mixed sound when studied at the situation where its intensity is greatest, viz., over the apex of the organ. M. Magendie announced many years ago, as the result of his experiments, that the sounds of the heart proceeded simply from its stroke on the thoracic walls; the first resulting from the stroke of the point of the heart in the intercostal space, and the second from a stroke of the ventricles of the heart against the sternum, taking place in their diastole. M. Andral was inclined to adopt this theory; but, the valvular theory suggested in 1831 by Billings, in England, elaborated a year later by M. Rouannet in Paris, was adopted by M. Bouillaud, and it is now almost universally conceded that the second sound of the heart is entirely valvular. In an article on the circulation of the heart in the April number of the *British and Foreign Medico-Chirurgical Review*, the writer carefully considers all that is taking place during the systole and diastole of the heart. He does not believe that the contraction or dilatation of the muscular substance of the heart is attended with appreciable sound. The passage of the blood through the heart and into the large vessels he believes to be noiseless. He does not believe that the impulse can give rise to a sound. The first sound, for him, is entirely valvular, and its difference from the second sound is to be explained by the difference between the auriculo-ventricular and semilunar valves and the difference of their situation. Dr. Flint, however, calls attention to the variation of the first sound of the heart, as heard over the spot of the apex-beat or over that of the valves. He remarks that the first sound is almost invariably accentuated at the apex, the element of impulsion being almost constantly predominant, and also over the body of the heart; whilst, at the base, the valvular element is the loudest, as well as over the right border of the heart, and at

all the points removed from the præcordial region when the first sound is appreciable.

Pathologists who regard the first sound as valvular, do not dwell as much on modifications of the sounds of the heart as characteristic of hypertrophy. Dr. Walsh—who admits muscular action, forcible shock of fluids against resisting membranes to be concurrent causes of the first sound, with valvular tension and impulse—says, "that in simple hypertrophy, the first sound is dull, muffled, prolonged, weakened, in some cases almost to virtual extinction, directly over the ventricle, the sensation reaching the observer's ear being rather one of impulsive motion than of sound; under these circumstances a tolerably full systolic sound may nevertheless frequently be found at the base and at the ensiform cartilage, the extent of its transmission being very limited. During palpitation the first sound sometimes becomes comparatively clear." M. Grisolle says that hypertrophy of the heart is especially characterized by the violent impulse and the dulness and obscurity of the two sounds. M. Bouillaud, in his clinical lectures on diseases of the heart as reported by M. Auburtin, speaks of variation in the strength and extent of the impulse as the only physiological signs of hypertrophy.[1] Dr. Hope says that hypertrophy has the effect of deadening the sounds of the heart. "In simple hypertrophy, the first sound is duller and more prolonged than natural, in proportion as the hypertrophy is more considerable." Dr. Stokes speaks of augmented sounds in hypertrophy. Dr. Flint tells us that hypertrophy of the left ventricle tends to exaggerate the element of impulsion of the first sound so long as the muscular power of the heart remains unimpaired. We read, also, that in hypertrophy the element of impulsion is relatively more exaggerated than the valvular element, and that exaggeration of the tricuspid portion of the valvular element of the first sound, is regarded as evidence in some cases of hypertrophy of the right ventricle. "Exaggerated intensity of the pulmonary second sound is highly significant of hypertrophy of this ventricle." The matters thus brought forward by our author are of interest and deserve further consideration. Further study of the heart-sounds in health and disease is needed to establish the truth of the impulse element of the first sound. And, in hypertrophy, whilst the impulse is often greater, it is sometimes less than in health. It depends more on the nervous than on the muscular element. We find violent nervous palpitations where the moving power is inordinately excited, with no increased muscular development; and, at a certain stage of hypertrophy the heart moves slowly and feebly, and the impulse is less than in health. M. Beau has described what he calls asystole of the heart, as a sequel of valvular and of cavitary disease. Under an obstructed circulation, the ventricles are hypertrophied and dilated, and thus the circulation is carried on successfully for a while. The nervous power is, however, being used up, and presently fails. As long as it was sufficient, the signs of hypertrophy from strong and extended impulse are very marked. There may be loud murmurs indicative of obstruction or insufficiency, but all disappear. The impulse and the sounds are feeble, there are no abnormal murmurs, the patient dies, and the post-mortem examination reveals an extent of cavitary and valvular disease, surprising those who had studied the case only during the last days or

[1] He says also in another place, whatever be the degree of alteration of the ventricles or auricles, there is no sensible modification of the heart-sounds as long as there is no disease of the valves.

weeks of life. Now, these facts should be borne in mind when we are called upon to prescribe for hypertrophy of the heart, and Dr. Flint very properly comments on mistakes which have been made in insisting unduly upon depleting and reducing remedies. Etiology should always go hand in hand with therapeutics. Hypertrophy is often a provision of nature consequent on valvular disease or on disease of the blood, and bloodletting and purgatives are not appropriate remedies in these classes of cases. Dr. Flint does not allude to the researches of Messieurs Menieric and Larcher, the results of which were confirmed by those of M. Ducrest, on pregnancy as a cause of hypertrophy. He thinks that in much the larger proportion of cases of hypertrophy, the anterior causative conditions are obvious, and are seated in the heart itself or in the large vessels. These antecedent pathological conditions being for the most part not removable, soberness and discretion should characterize the conduct of the practitioner. Small bleedings, laxative alteratives, have their place, and are not to be dispensed with altogether. Dr. Flint very properly says that muscular exercise within certain limits is to be encouraged, "that a certain amount of exercise is positively beneficial, by promoting the heart's vigour, and retarding the passage from predominant hypertrophy to predominant dilatation." If hypertrophy is regarded as a disease of nutrition, muscular exercise in the open air, so promotive of secretion, of excretion, and of all the processes of a healthy nutrition, is certainly to be recommended.

The first chapter of Dr. Flint's book concludes with an article on enlargement by dilatation; and the difference of the pathological processes involved in dilatation from those concerned in hypertrophy, is clearly pointed out; hypertrophy being a consequence of over nutrition, and dilatation the result of the yielding of the walls of the heart to a distending force. The second chapter is devoted to lesions, exclusive of enlargement, affecting the walls of the heart. Atrophy, fatty growth and degeneration, softening of the heart in typhus and typhoid fevers, and other affections, induration of the heart, rupture of the heart, cardiac aneurism, carcinoma, tuberculosis, have each their place assigned them, and in the account given reference is made to original researches on these subjects. We will pass to the third chapter, in which are considered lesions affecting the valves and orifices of the heart. Dr. Flint begins this chapter very well by saying—

> "Lesions of the valves or orifices of the heart are present in a very large proportion of the cases of organic disease of this organ, which come under the cognizance of the physician. In addition to the intrinsic interest which they possess as subjects for clinical study, they are important as standing in a causative relation to other cardiac lesions, more especially enlargement of the heart, and also as giving rise to pathological effects, manifested in other parts of the body."

We regret that "a full discussion of the origin and mode of production of valvular lesions, involving pathological points of much interest and importance," was inconsistent with the "practical objects" of Dr. Flint's work. He is very well qualified for this task, and the nicety of cardiac diagnosis is much dependent upon it. Dr. Stokes, in his work on the heart and aorta, says, "that, whilst we should by no means underrate the importance of differential diagnosis in valvular disease, the number of cases in which it is desirable to determine the exact seat and nature of the affection is comparatively small." This arises somewhat from the fact of the attention of the patient not having been called to the disease in the earlier stages. An obstructive disease of the mitral valves is a more formidable affection

than a similar affection of the semilunar valves of the aorta, and requiring a more careful regimen. The diagnosis is easily made. The facts, however, that one lesion involves another; that obstructive disease and insufficiency of the same valves are often found together; that there are murmurs and modifications of the heart-sounds where the valves are healthy; and that sometimes, with extensive valvular disease, there are no murmurs at all; that cavitary disease succeeds valvular; and that the motive power of the heart, its nervous system, is sometimes much disturbed, when there is neither valvular nor cavitary disease, and is irregularly affected by the same amount of lesion in exocardial or endocardial disease; all these make diagnosis and prognosis difficult in cardiac affections, and render treatment uncertain. The relative frequency of mitral and aortic lesions is an interesting question; and Dr. Flint tells us that in his own experience, of 104 cases, in 40 the lesions were mitral, and in 37 aortic. Mitral and aortic lesions coexisted in 14 cases, and in 4 cases only were there lesions of the tricuspid valves. In 61 cases of valvular lesions, rheumatism had occurred in 43; in 20 of 29 cases of mitral lesions, and in 7 of 14 of aortic. The rule that dilatation predominates in regurgitation without obstruction, and that hypertrophy is marked in obstruction without regurgitation, is sustained by an analysis of Dr. Flint's twenty-one cases, only three of which were exceptional. Prolongation of the interval between the heart's impulse and the pulsation of the radial artery, a symptom of aortic regurgitation pointed out by Dr. Henderson, was well marked in a case observed by Dr. Flint, where the interval between the apex-beat and that of the radial artery was longer than that between the first and second sounds of the heart, and the interval between the apex-beat and that of the carotid artery was the same as exists normally between the apex-beat and the radial pulse.

The curious researches made by Dr. Upham, in the case of M. Groux, should be mentioned in this connection. They are found in the fourth volume of extracts from the records of the Boston Society for Medical Improvement. Dr. Flint alludes to the application of the sphygmoscope, devised by Dr. Scott Alison, of London; but its insufficiency to ascertain and measure the interval between the pulsation of the medio-sternal tumour in M. Groux's case and the impulse between the fifth and sixth ribs, led Dr. Upham to devise means of appealing to the ear, which organ is more capable of appreciating and measuring short intervals. The apparatus in the city telegraph room belonging to the city fire alarm at Boston, and that in the observatory at Cambridge, were called into requisition. Mr. Farmer, the electrical engineer, and his assistant, Mr. Rogers, were collaborators with Dr. Upham, and in the latter experiments they were in Boston, whilst Mr. Stearns, the superintendent of the Boston fire alarm, with Mr. Kennard, recently of the St. Louis fire alarm office, were at the observatory in Cambridge. The medio-sternal and apex-beats were compared, and, the whole duration of the pulse-beat being set down as 1.000, the interval between that of the medio-sternal tumour and of the apex was ascertained to be .038, and to that of the radial artery at the wrist .235. Calculations were made as to the time in which the heart's impulse is transmitted to the carotids, the temporal arteries, and the abdominal aorta. These researches are not merely very curious, they are valuable. Take, for instance, the controversy which has existed as to the time of the murmur heard in obstructive disease of the auriculo-ventricular orifice. Some maintained that a diastolic murmur, located at the apex, was a pathognomonic symptom of this disease. Others maintained that the murmur was systolic;

whilst a third class of observers maintained that this murmur was heard a little before the contraction of the ventricles, was presystolic, whilst that from insufficiency of the mitral valves was properly systolic.

Monsieur Herard, in an interesting article, published in the *Archives Générales de Médecine* for the year 1853, undertook to prove that an obstructive disease of the auriculo-ventricular orifice might give rise to a systolic murmur, to a presystolic murmur, to a dyastolic murmur, and that in certain cases no murmur at all was heard. He relates one case observed very carefully by himself, and cites eleven other cases to establish the first point. M. Fauvel, in an article published also in the *Archives Générales* for the year 1843, had proved that obstructive disease of the left auriculo-ventricular orifice gives rise to a presystolic murmur, Messieurs Barth, Roger, and Gendrin, having previously called attention to the fact. Four cases with an autopsy, and four cases without autopsy, all original with the author, are related to establish the proposition that a diastolic murmur does sometimes accompany an obstruction of the left auriculo-ventricular orifice, and these are followed by nine cases from various authors in support of the same proposition. That the same disease is sometimes found after death, when no murmur has been heard during life, is disputed by no one. Now, in connecting these facts with accounts given of the heart's movements, it is shown that they are consistent with the descriptions given by Harvey and Haller, and adopted by Hope, Burdach, Beau, Barth and Roger, Muller, Berard, where the systole of the ventricles is said to follow immediately upon the contraction of the auricles. Thus, in the first period of the heart's movements, we have the auricular systole, the passage of blood from the auricle into the ventricle through the auriculo-ventricular orifice, ventricular systole, and passage of blood from the ventricle to the aorta through the auriculo-arterial orifice. Obstruction or insufficiency of the auriculo-ventricular orifice, obstruction of the auriculo-arterial orifice, may give rise to systolic murmurs. A presystolic murmur produced by the blood driven by the contraction of the auricle through a narrow orifice is especially characteristic of obstructive disease. But it cannot always be recognized as presystolic, on account of the rapidity of the movements, of the very short interval between the contraction of the auricle and that of the ventricle. M. Bouillaud described the pulsations of the medio-sternal tumour in M. Groux's case as isochronous with the pulsations of the carotid and subclavian arteries and the impulse of the heart; and yet Dr. Upham has demonstrated that the interval between these different pulsations is perceptible, and has measured it. We have noticed, ourselves, different observers looking at the medio-sternal and apex pulsations of M. Groux, some calling them isochronous, and some pronouncing that one preceded the other. Thus, we find additional and important proof of the truth of Harvey's and Haller's descriptions from these recent researches of Dr. Upham, and we recognize their importance as applied to the diagnosis of valvular disease of the heart. The fact that a diastolic murmur is sometimes produced by an auriculo-ventricular obstruction is in agreement with the old description of the heart's movements, of the ventricles gradually dilating during the interval of silence and repose, the blood flowing into them; and is fatal to the account given by M. Beau, who speaks of these cavities remaining closed after their systole.

Dr. Flint speaks of direct mitral currents, and of direct aortic currents, which are the normal blood-currents. Mitral regurgitant and aortic regurgitant are the abnormal blood-currents associated with valvular insuffi-

ciency. We do not like the classification of direct mitral murmurs with the diastole; for though they may occur at that time, yet they are more frequently caused by the contraction of the auricle which follows the silence, and is rather to be considered as the first act of the systole. We do not find any reference made to Dr. Herard's article, which seems to us conclusive.

Dr. Flint devotes a few pages to a consideration of the modifications of the heart-sounds in cases of valvular lesions. Prof. Skoda first pointed out intensification or reinforcement of the pulmonic second sound as a valuable sign of mitral obstruction or regurgitation. Dr. Flint says that—

"Mitral lesions impair the mitral portion of the valvular element of the first or systolic sound, other things being equal, in proportion to the extent of injury of the mitral valve which the lesions have occasioned. To isolate the sound referable to the play of the mitral valve, the stethoscope is to be placed without the left nipple, at a distance sufficiently removed to eliminate the element of impulsion of the first sound. If the mitral valvular sound be abnormally feeble, or wanting, provided the heart acts with sufficient vigour, it shows considerable or great imperfection in the action of the valve; and, conversely, if the sound preserve its normal intensity and quality, it may be inferred that, notwithstanding the existence of lesions, the valve is not as yet much damaged. A mitral regurgitant murmur, or a mitral direct murmur, either or both, coexist in both cases; in the former case the murmur or murmurs may be feeble, and in the latter intense, the intensity of the murmur bearing no proportion to the gravity of the lesions. In cases in which the mitral valvular sound is notably impaired, or extinguished, owing to the extent of injury to the valve, the tricuspid valvular sound may generally be distinguished by applying the stethoscope at, or a little without, the inferior or right border of the heart."

We here see how a careful study of the normal sounds of the heart over different parts of the chest leads to important results in the examination of disease, in enabling us to ascertain its character and amount. Dr. Flint's remarks on the treatment of valvular lesions are very good and practical, and at the same time quite full. We are glad to see a caution against talking too much to patients, or communicating to them a positive unfavourable prognosis.

"Some practitioners, participating in the popular impression that unsoundness of the heart is a very serious matter, involving liability to sudden death at any moment, injudiciously communicate their opinions and their fears to their patients. I have repeatedly met with instances in which persons have been so informed, much to the prejudice of their comfort, usefulness, and even to their prospects of preserving comfortable health for a long period. It should be borne in mind that lesions which give rise to murmurs are often innocuous, the danger being prospective and perhaps remote. And even when the lesions are of a nature to involve obstruction or regurgitation, and have led to considerable enlargement of the heart, life and comfortable health may be preserved for many years. Moreover, statistics show that sudden death occurs only in a small proportion of the cases of organic disease of the heart."

We should have expected in this connection an allusion to the opinion that aortic insufficiency is the valvular lesion associated with sudden death.

Dr. Flint's fifth chapter is on congenital misplacements, defects, and malformations of the heart. The subject of cyanosis reminds the reader of the premature death of Dr. Moreton Stillé, whose monograph on that subject is so valuable a contribution to the annals of science.[1] Certain affections incidental to organic diseases of the heart are considered in the sixth chapter. Angina pectoris is dwelt upon at some length. It is a rare affection in Dr. Flint's experience, as well as that of others. He found it in seven

[1] See No. of this journal for July, 1844, p. 25 *et seq.*

of one hundred and fifty cases of organic disease of the heart. He regards it as a neuropathic affection, incidental exclusively to organic affections of the heart, but it is not symptomatic of any one of the varied lesions to which the heart is subject. Reduplication of the heart-sounds is taken up in the last article of the chapter, and Dr. Flint is able to throw some light on this subject from his own researches. To Dr. Walshe's question, "How is the fact that the second sound may be continuously doubled at the base, and perfectly pure and single at the apex, explicable on the simple valvular theory of the second sound?" he returns an answer—in the fact that the pulmonic second sound is so weak as generally not to be transmissible to the apex. Dr. Flint does not find this symptom, indicative as it is of aberration of the heart's action, to be followed by serious consequences. In a case of reduplication of both sounds, the patient recovered, and remained perfectly well for several years, notwithstanding moderate hypertrophy, dying at length of a disease foreign to the heart.

Inflammatory affections of the heart occupy the seventh chapter. Pericarditis is spoken of as a rare disease, and it is often an obscure disease. Several pages are devoted by Dr. Flint to its physical signs. Dr. Gairdner, of Edinburgh, has lately written on this subject; and Dr. Flint's conclusions, though differently stated, are not materially different from those of the Edinburgh professor. The latter is more distrustful of his ability to distinguish exocardial from endocardial sounds, and here he seems to us more correct, as also in expecting less aid from auscultation in the diagnosis of the disease. A case is reported, showing that pleural friction-sounds may be produced by the action of the heart, corresponding with those reported by Dr. Addison and others. In speaking of the cerebral symptoms, Dr. Flint relates three interesting cases, where the cerebral symptoms were so prominent as to hide the usual signs, and refers to those published by Dr. Burrows. The connection of pericarditis with disease of the kidney is spoken of as existing in three of nineteen cases, where there was no other appreciable cause. The disease of the kidney resulting in an impure blood is regarded as the cause of the disease of the pericardium. In the treatment of pericarditis, bloodletting and mercury are properly spoken of as remedies to be used sparingly and with discrimination. Several pages are devoted to pericardial adhesions, and reference is made to the researches of Dr. Gairdner and Mr. Kennedy. Endocarditis is regarded as important from its complication with rheumatism and Bright's disease, and the experiments of Dr. Richardson are very properly referred to.

A chapter is devoted to functional disorders, and the last and tenth chapter is occupied with diseases of the aorta. It is very true "that there are few problems in clinical medicine more important than that which calls for a decision as to the existence of a purely functional disorder of the heart or of an organic affection." The fact that functional disorder generally occasions, in a marked degree, anxiety and apprehension, is properly contrasted with the indifference and apathy of the subjects of organic disease. Attention is also called to the clinical proof that changes of structure do not originate in disturbed action of the heart. M. Bouillaud seems to think that inflammatory affections are at the bottom of all valvular diseases. He does not believe in the effect of the emotions to produce cavitary or valvular disease. Sam Slick, the Yankee clockmaker, seems to be of the same opinion, as, he says, the only person he knew to die of a broken heart was a man who attempted to lift an anchor. There is less scepticism now, however, than there was a few years ago as to the effect of the emotions on

processes of nutrition. Bread pills and placebos are being again regarded with more favour by scientific men. Undoubtedly, at one time, a more prominent place in cardiac etiology was assigned to the affections and passions than belonged to them. The influence of rheumatism, of gout, of Bright's disease, are known and recognized only within comparatively a few years. It is difficult to estimate properly the agency of grief—of the exciting or depressing passions—to originate not merely disorder, but disease, in the great organs of circulation and respiration. Hope and trust certainly are powerful agents in the treatment of disease, though we may not understand how they act. Whatever creates or develops them is particularly beneficial in the treatment both of organic and functional diseases of the heart. The condition of the nervous system certainly is the obscure point in cardiac pathology. The state of the blood, the nutrition of the organs of circulation, afford difficult problems. Notwithstanding the successful researches of modern pathologists, by which the condition of the muscles and valves of the heart may be ascertained, the state of the nerves and nervous centres is not recognizable by our means of exploration. Dr. Arnold, head master of Rugby, a man so well known, so highly esteemed—one whose life was deemed so important to his fellow-men—dies of disease of the heart, of which his medical attendant seems not to have been aware till summoned to his bedside to witness his death. A recent biographer of Lord Macaulay calls attention to his very sudden and unexpected death, and remarks on the uncertainty of the signs of disease of the heart, and on the mistakes made in prognosis.

Dr. Flint chose a difficult subject for his researches, and has shown remarkable powers of observation and reflection, as well as great industry, in his treatment of it. His book must be considered the fullest and clearest practical treatise on those subjects, and should be in the hands of all practitioners and students. It is a credit to American medical literature. We have pointed out some things which we could have wished otherwise in the plan and arrangement of the work. A smaller book could have been made, and nothing of value in the volume omitted. The style is for the most part clear and simple. We must object, however, to a few words which seem favourites with our author, and which justify the criticism that medical men are not sufficiently careful in the use of language, are fond of coining new words which are unnecessary. The word diagnostician, several times repeated, is of this character, and far from euphonious. The work itself is addressed to practical men—to physicians, to medical students—and not to scientific dilettanti. Dr. Flint, however, like all men of real merit, is not ashamed to confess his deficiencies, and he has a higher appreciation of the difficulties and extent of his task, of the impediments in an active and busy life to successful literary effort, than would be consistent with a claim to have been perfectly successful in what he undertook to do, or to have exhausted his subject. We hope that we shall hear from him again, and we look forward for him to increasing reputation founded on increasing desert. Having both faculties, and facilities for observation in his connection with hospitals and consulting practice, he is well fitted to report and arrange facts, and to analyze and deduce from them legitimate conclusions. We confess a decided preference for a work, all the statements of which are susceptible of verification from its own resources, and which may be compared with those of independent observers. A certain degree of exactness is possible in medicine, and is the more desirable because we are often obliged to receive assertions founded on impressions easily effaced or dis-

torted, and not susceptible of verification. Such works as those of M. Louis may not be popular, they may have few readers, but we believe that there are genuine students enough to value material for thought and reflection, and to appreciate the author who furnishes them with the means of drawing their conclusions, and allows them the exercise of their own faculties. Are we not in our day in danger of being too much engrossed in attempts to prepare knowledge and present it so that it may be easily received, forgetful of the necessity of the faculties being trained and disciplined in these very attempts to acquire knowledge. But we can pursue this subject no further, and we should be sorry if in touching upon it we should seem to be casting any reproach upon our author, whilst our remarks are really directed to certain influences acting upon all whose avocation it is to teach by lectures or by books. G. C. S.

Art. XV.—*A Medico-Legal Treatise on Malpractice and Medical Evidence, comprising the Elements of Medical Jurisprudence.* By John J. Elwell, M. D., Member of the Cleveland Bar. New York: John S. Voorhies, 1860. 8vo. pp. 588.

History teaches that from the earliest period, the practitioner of the healing art has been held responsible to arbitrary power, or tribunals of justice, for errors in the treatment of disease. According to Strabo, the first efforts to cure the sick, among the most ancient nations, consisted in exposing them in public places, so that whoever passed by, and had been similarly affected, might give their advice to the sufferers. Subsequently arose the custom of requiring those who were cured, to go and record in the temples the symptoms of their diseases, and the remedies which had benefited them. In Egypt the temples of Canopus and Vulcan, at Memphis, contained the principal registers, but according to the same historian, the Babylonians and Lusitanians had a similar custom. These registers were preserved with great care, but the people were allowed to consult them freely, and select such remedies as they chose. Thus was collected a great number of facts, based on observations. In time, however, the priests, who were charged with the study of these records, began to assume the exclusive practice of the art; and it was through their labours that a medical code was formed, which embraced the recorded experience of ages. As might be anticipated, this collection of medical facts became the standard of practice; and the first instances which we have of the legal responsibilities of medical men are in their departure from these established rules. "For the physicians," says Diodorus, speaking of the customs of the ancient Egyptians, "have a public stipend, and make use of receipts prescribed by the law, made up by the ancient physicians; and if they cannot cure the patient by them, they are never blamed; but if they use other medicines, they are to suffer death, inasmuch as the lawmaker appointed such receipts for cure as were approved by the most learned doctors, such as by long experience had been found effectual." Aristotle, alluding to the same custom, says, "Even in Egypt the physician was allowed to alter the mode of cure which the law prescribed to him, after the fourth day. But, if he did so sooner, he acted at his own peril."

Egypt supplied Persia with her physicians, but here a very different standard of success was established. In the failure of the physician to cure his patient, his own life was sacrificed. Manes, it is recorded, was flayed alive because he failed to cure the king's son.

In Greece the same custom of recording recipes in the temples prevailed as in Egypt, and from that source was derived their first medical code; to this standard the physician had to conform his practice at his peril. Precisely in the same manner is the Chinese physician to this day, held responsible for any departure from the rules and remedies laid down in their medical works.

Pliny, inveighing against the physicians of Rome, laments that there was no law or statute to punish them for their mistakes; he declares that the physician was the only person whose act was not called in question even if he murdered a man. However lax the laws of Rome may have been at the time Pliny wrote, they were afterwards sufficiently stringent.

In the history of all the more civilized nations of antiquity we can trace the idea that physicians should be held more responsible for errors in their business than any other class of men. This feeling was naturally the offspring of the public confidence in the power of the physician to save the lives of the dying, and restore to health the sick. Any failure to accomplish this object was attributed to a malicious intent, and was hence made a capital offence.

Among most modern nations the civil responsibilities of physicians are defined by statutory provisions, more or less precise, according to the nature of the individual government, and its advancement in the arts and sciences of civilized life. In France, Great Britain, and the Germanic States, especially, are the laws relating to the medical profession stringent, yet liberal in their provisions, tending, in most respects, while they check and punish abuses, to develop, foster, and advance true scientific medicine. We shall not pause here to consider the status of medicine in our own country; it will suffice to add that, while it receives from government no protection or support, it is held more directly amenable to courts of law for its errors, whether real or alleged, than in any other country.

But though the physician has thus been held responsible to legal tribunals for errors in the practice of his profession in nearly every nation and age of the world, this branch of medical jurisprudence has attracted but little attention from writers in this department. The earlier writers have, however, given the subject more attention than later authors. Paulus Zacchius, whose great work, *Questiones Medico-Legales*, ranks as the second work on medical jurisprudence, published in 1634 the sixth book of that collection of essays, the first section of which was entitled "*De Medicorum Erroribus a Lege punibilibus.*" This section consists of thirteen questions, which are discussed at length, and embrace many of the most interesting points which arise in the litigation of cases of alleged malpractice in our times. Subsequent writers, who have discussed the subject at all, have drawn largely upon Zacchius. Many German authors have devoted a chapter or more to the subject of medical malpractice, but no author has, that we are aware, made it the subject of a special treatise. The same is true of French writers on medical jurisprudence.

English and American authors have hitherto entirely avoided the subject. Even the voluminous work of Beck, which may well rank as an encyclopedia of medico-legal facts, has neither chapter nor section on this branch of forensic medicine. When we consider the importance now attached to

malpractice in medicine by our communities, the frequency with which such suits are prosecuted in our courts, and the ignorance of both the medical and legal professions on most of the questions which arise in these cases for discussion, we are surprised that authors on forensic medicine should have so carefully evaded the subject hitherto.

The author of the work before us has endeavoured to supply this deficiency in our medico-legal literature by the preparation of a treatise designed especially to elucidate the general principles of law applicable to medical men, and establish their true legal responsibilities. The importance of this undertaking no one can doubt; such a work has become a necessity, and we are only surprised that industrious and intelligent labourers have not long ago entered a field so white for the harvest, and garnered its rich fruits. Let us be thankful that one reaper has entered, and now returns hence, bearing his sheaf.

We learn from the preface that the author combines in one person a knowledge of law and medicine, and may therefore be considered by education eminently qualified for the authorship of a work on legal medicine. A medical man writing on medical jurisprudence is said to discuss legal principles too much; and, *vice versa*, a lawyer writing on the same subject introduces too much medical matter. This fault arises from the anxiety of each to appear learned in, or to do justice to, that division of his subject of which he has the least actual knowledge. A proper balance of the medical and legal educational qualifications of an author, in legal medicine, would seem, therefore, to be indispensable to a judicious consideration of the questions which arise for discussion in a twofold light. In the works of Paris and Fonblanque, and Wharton and Stillé, we have this blending of the two professions, and, no one can doubt, with the happiest results.

In the introduction, the author gives the general plan and scope of the work. The important question has long agitated the profession of this country, How shall medical men protect themselves from unjust prosecutions while in the legitimate pursuit of their calling? This question has been variously answered, and individuals have resorted to widely different methods of securing this end. Written contracts between surgeon and patient are but cobwebs for security; nor do the sympathy and earnest support of professional friends shield the victim in the hour of trial. Dr. Elwell says:—

"The only effectual and permanent mode, it is believed, by which the evil can be reached, remedied, and guarded against, is by elevating the standard of medico-legal knowledge in the professions of law and medicine. It is not to be denied that members of the legal profession, with few exceptions, are imperfectly informed upon medical questions connected with law, though they may be well educated in law generally, and well informed on every other subject."—p. 9.

The imperfect knowledge of members of the bar of medico-legal subjects is attributed to the bad arrangement and general character of the works upon medical jurisprudence, which ignore malpractice altogether. Chitty's *Medical Jurisprudence* is represented as an elaborate work on the several departments of medicine, and Beck's treatise as a vast storehouse of undigested facts. The ignorance of medical men of their responsibilities and liabilities is due to the same cause, viz., the imperfections of our works on medical jurisprudence, and the omission of the entire subject of malpractice. Hence the design of the work under examination.

"The author has attempted in this volume to present the medico-legal questions likely to engage most frequently the attention of attorneys and medical men, in a circumscribed and compact form, and to reduce, if possible, the voluminous

literature of the subject, scattered throughout law and medicine, to a practical system; with what success, others are the judges.

"Proceeding upon the idea that much more matter of a strictly theoretical and medical character is connected with the discussion of medico-legal subjects, in most works upon medical jurisprudence, than is necessary, tending, as it does, to repel, rather than enlighten, the legal inquirer, and rendering his search uselessly laborious, the author has endeavoured to strip the subject of all such profitless details and discussions, leaving the consideration of speculative themes to other works and writers.

"It is also the aim of the present work to furnish to the medical man that necessary information respecting his legal responsibility as a practitioner and witness which he has been hitherto unable to obtain, except by the general study of law. In short, the author believes it possible for both of these classes to arrive at the desired point, and command the necessary information by a much shorter road than that usually taken, and at a much less expenditure of time." —p. 12.

Before leaving the Introduction, we must express our dissent from the views of Dr. Elwell, in regard to the proper remedy for the too frequent prosecutions to which medical men are subjected. Our own experience in suits for alleged malpractice, has led to the conclusion that both the source of the evil and the remedy lie within the pale of the profession itself. The secret history of the vast majority of those cases reveals the humiliating fact that they were instigated by medical men. The following views, which we have elsewhere expressed, convey our own convictions in regard to the remedy for this evil: One of the most serious difficulties in the trial of a suit for malpractice in this country, is the conflicting and often contradictory nature of the medical testimony. It is this that misleads both judge and jury, and in nine cases out of ten decides the case against the defendant. The very means on which the surgeon can alone rely for defence, the opinions of his professional brethren, become of little or no account in the hour of trial; and however fair his case may actually be, he must submit it to the mercy of an unsympathizing jury. The great point to be attained, therefore, to insure a fair trial, is to render the medical evidence consistent with itself. This is to be done, not by taking the individual opinion of any man, however eminent, as law, but by having the average experience of the profession, as a guide. At present the medical witness testifies without any fear of having his opinions questioned, except by opposing witnesses, with whom he stands on an equal footing before the court. If he is honest, his opinions may be based on such limited observations as to make them really of no value; but if he is dishonest, and, as is often the case, personally interested in the prosecution, there is no limit or check to the knavery which he may practice.

It is obvious, therefore, that to correct this great evil, and make the medical evidence on which these medico-legal decisions depend, consistent with itself and reliable for a court to follow, it is essential to establish by indisputable facts, the average of medical experience and skill on all those points in surgical practice, made the subject of litigation. For the surgeon is required by law to practise his profession with only average skill and success. To such a collection of facts, and the principles deduced therefrom, every medical witness would be compelled to conform his testimony, while the court would have a guide to estimate the value of all medical opinions, as authoritative as the *statute* itself.[1]

The work is divided into two parts. Part first, occupying less than half

[1] New York Journal of Medicine, Sept. 1853.

of the volume, is devoted to malpractice; part second is on medical evidence, embracing also the subjects of insanity, poisoning, infanticide, rape, and the ordinary questions in medical jurisprudence. As the subjects of the first portion of the work are of great interest and practical importance to physicians, and are now for the first time brought before the profession in the form of a treatise, we shall devote our space principally to an analysis of its several sections.

The subject of the first chapter on malpractice is The General Principles of Law applicable to Medical Men. It is stated as a leading proposition that the civil responsibilities of those whose employment demands special skill and knowledge in the transaction of business, are the same. The physician, lawyer, engineer, machin'st, ship-builder, and broker, are amenable to the same general principles of law. As to the nature of the contract which exists between the physician and patient, the author remarks:—

"The nature of the contract between the physician and patient, and attorney and client, are alike; neither class, without an express contract, is a warrantor or insurer. Certainly nothing unreasonable or oppressive should characterize the rule of law in its application to the conduct of the professional man, thus making a different rule from that applicable to other men.

"The professional man does not agree or stipulate to carry the case through to a successful issue at all events, and notwithstanding all contingencies; and he is not to be tried by the result.

"If a man contracts to do a thing that is absolutely impossible at the time of making such contract, he is not bound thereby, because no man can be compelled to perform an impossibility. But a distinction is taken between a contract to do a thing which is accidentally impossible, and wherein the party engages to do something absolutely impossible; for, in the former case, the contract is binding, notwithstanding it was beyond the power of the party to perform it, it being his own fault and folly that he did not expressly provide against those contingencies he should know might possibly transpire, and exempt himself from responsibility in certain events. In such a case, therefore, the performance is not excused by the occurrence of an inevitable accident, although it was not foreseen by, or within the control of the party.

"The physician or surgeon may, undoubtedly, undertake by express contract to perform a cure absolutely. In a contract of this kind, the utmost diligence and skill will not excuse him, should the result be unfortunate; because it was his own fault, or inexcusable ignorance, that so uncertain a result should have been guaranteed successful. The extent of the physician's or surgeon's liability under an express contract to cure, will depend upon the circumstances of the case. If he undertakes an absolute impossibility, the law will not hold him responsible for the full extent of the damage resulting to the patient by reason of the failure to cure. His responsibility extends to a forfeiture of all compensation for medicine and service. The impossibility of the undertaking excuses him in part.

"Neither will a want of sufficient skill or knowledge to fulfil an express contract excuse its performance. A builder may agree to erect a house or a ship of a certain description, and he cannot afterwards excuse himself on the ground of his want of sufficient skill. In that case, the maxim of the civil law applies: *spondet peritiam artis*—the person undertaking to do the work is bound to use a degree of skill and attention adequate to the performance of his undertaking; that is, to do it according to the rules of the art. So, a surgeon may contract for the removal of a limb, the physician for the cure of a disease, or the lawyer for the foreclosure of a mortgage, and by that contract he becomes a guarantor of the result. It is his fault to undertake to do a thing beyond his strength, or for which he has not sufficient skill, or to employ bad workmen; *imperitia culpæ annumeratur*—ignorance is like negligence, for which one is responsible."—p. 21.

To present this matter of contract and of the general responsibilities of physicians in a judicial light, we will quote in this connection the decision

of Judge Bell, of New Hampshire, as given on page 142, in the case of Leighton *vs.* Sargent:—

"1. A physician or surgeon, without a special contract for that purpose, is never considered as warranting a cure.

"2. His contract, as implied in law, is that. 1. He possesses that reasonable degree of learning, skill, and experience, which is ordinarily possessed by others of his profession; 2. That he will use reasonable and ordinary care and diligence in the treatment of the case committed to him; 3. That he will use his best judgment in all cases of doubt as to the best course of treatment.

"3. He is not responsible for want of success, unless it is proved to result from want of ordinary skill, or from want of ordinary care and attention.

"4. He is not presumed to engage for extraordinary skill, or for extraordinary diligence and care.

"5. He is not responsible for errors of judgment, or mere mistakes in matters of reasonable doubt and uncertainty."

These doctrines are now well established, and have been reaffirmed by nearly every judicial tribunal before which these questions have come for adjudication. Dr. Elwell gives great latitude to that part of the implied contract which relates to ordinary skill. According to him, as the degree of skill which a physician or surgeon exercises depends upon the advantages which he has for acquiring practical knowledge, so the term "ordinary degree of skill" may vary in its signification in the same State or country. He says:—

"There are many neighbourhoods, in the West especially, where medical aid is of difficult attainment; yet cases of disease and surgery are constantly occurring, and they must, of necessity, fall into the hands of those who have given the subject but little, if any, thought. Thus the inexperienced and the unlearned attend to the surgery in their way, or it is not attended to at all. In such a case, and under such circumstances, and for these reasons, the ordinary degree of skill required by law would be good common sense, or such knowledge as the operator had, joined with a good purpose to help the afflicted, even if such interference rendered the patient a cripple for life. This is the law in both England and this country. Even in England, it was said by Hullock, in the case of Van Butchell, that 'many persons would be left to die if irregular surgeons were not allowed to practise.' In these cases, no more, of course, should be expected of the operator than the exercise of his best skill and judgment, however limited that might be.

"In large cities and towns are always found surgeons and physicians of the greatest degree of skill and knowledge. Their pretensions are properly large. They are to be held to a corresponding high degree of responsibility. They contract to do more than the ordinary physician, and they are paid a higher price for what they do; consequently the contract is more difficult to fulfil.

"In the smaller towns and country, those who practise medicine and surgery, though often possessing a thorough theoretical knowledge of the highest elements of the profession, do not enjoy so great opportunities of daily observations and practical operations; where the elementary studies are brought into every-day use, as those have who reside in the metropolitan towns; and, though just as well informed in the elements and literature of their profession, they should not be expected to exercise that high degree of skill and practical knowledge possessed by those having greater facilities for performing and witnessing operations, and who are, or may be, constantly observing the various accidents and forms of disease."—p. 22.

We have always doubted the correctness of the opinions here advanced, although they have received, to a certain extent, judicial sanction. It would be manifestly dangerous for our courts to attempt to instruct juries in regard to the meaning of ordinary skill, varying the definition according to the advantages which each locality was *supposed* to afford the practitioner

for the acquisition of practical knowledge. Nor would it be just to do so, were it possible. For while it is true that the metropolitan practitioner has greater facilities for acquiring experience in his profession, yet it is equally true, that he has counteracting influences to contend with in the treatment of diseases which are unknown in the country, and which often more than compensate for his greater practical knowledge. Again, there are fixed rules of practice which give, under ordinary circumstances, certain well established results. In the hands of every practitioner of intelligence, certain surgical apparatus will give a predetermined cure. This in surgery would be considered an average result, and would prove ordinary skill, for the result determines the degree of skill. The professional responsibility of the surgeon, whether metropolitan or provincial, terminates with obtaining that average success in his treatment, and here should terminate his civil responsibility. The fact that a medical man lives in the country, however remotely from large towns, ought not, in our times when communication is so rapid, and books and periodicals are abundant and cheap, to be pleaded as an excuse for ignorance of the rules which are generally recognized in the profession as governing the practice of medicine, or indeed, of the latest improvements. The following opinion of Judge Woodward, in the case of McCandless *v.* McWha, sets this matter in a clear light:—

"'We have stated the rule to be reasonable skill and diligence, by which we mean such as thoroughly educated surgeons ordinarily employ. If more than this is expected, it must be expressly stipulated for; but this much every patient has a right to demand in virtue of the implied contract which results from intrusting his case to a person holding himself out to the world as qualified to practise this important profession. If a patient applies to a man of *different occupation* or employment for his assistance, who either does not exert his skill, or administers improper remedies to the best of his ability, such person is not liable in damages; but if he applies to a *surgeon*, and he treats him improperly, he is liable to an action, even though he undertook gratis to attend the patient, because his situation implies skill in surgery. * * *

"'The physician or surgeon who assumes to exercise the healing art is bound to be up to the improvements of the day. The standard of ordinary skill is on the advance, and he who would not be found wanting must apply himself with all diligence to the most accredited sources of knowledge.'"

Besides ordinary skill, the professional man contracts to exercise reasonable and ordinary care and diligence, and also his best judgment in the treatment of diseases. The author discusses these subjects with much clearness, and from the decisions of the best authorities deduces the rules which are now applicable in our courts. The following in regard to the duties of patients is worthy of record:—

"If the patient does not follow the prescription and co-operate with the surgeon, he cannot afterwards call the surgeon to an account for any unfortunate result that may attend the case.

"In the case of McCandless *v.* McWha, the Supreme Court of Pennsylvania said: 'Nothing can be more clear than that it is the duty of the patient to co-operate with his professional adviser, and to conform to the necessary prescriptions; but if he will not, or under the pressure of circumstances he cannot, his neglect is his own wrong or misfortune, for which he has no right to hold his surgeon responsible. No man may take advantage of his own wrong, or charge his misfortune to the account of another.'"

While it is thus established that the patient should co-operate with the surgeon in the treatment of his disease, there is a limit or rather qualification to this co-operation, which we desire to see stated in this connection.

We therefore quote from page 132, of Dr. Elwell's work, the following opinion given in the same case as that above :—

"'A patient is bound to submit to such treatment as his surgeon prescribes, provided the treatment be such as a surgeon of ordinary skill would adopt or sanction. But if it be painful, injurious, and unskilful, he is not bound to peril his health, and perhaps his life, by submission to it. It follows, that before the surgeon can shift the responsibility from himself to the patient, on the ground that the latter did not submit to the course recommended, it must be shown that the prescriptions were proper, and adapted to the end in view. It is incumbent on the surgeon to satisfy the jury on this point; and, in doing so, he has the right to call to his aid the science and experience of his professional brethren. It will not do to cover his own want of skill by raising a mist out of the refractory disposition of the patient.'"

In the consideration of many of the subjects of this chapter, the author has closely followed the admirable charge of Judge Bell, in the case of Leighton *v.* Sargeant, frequently copying him and his well collated references without, we think, due acknowledgment.

Law and medicine are proverbially uncertain, the former, because of the fluctuating opinions of courts, the latter, because of the inherent elementary difficulties connected with the practice of medicine and surgery. In Chapter II., the author endeavours to mitigate the errors of medical men, by pointing out some of the chief obstacles with which they have to contend in the treatment of disease.

They are such as arise from the subtile agencies of animal life, differences of temperament, hereditary and acquired predisposition to disease; the debilitating influences of modes of living, trades, passions, and the like, most of which are readily suggested to the medical mind.

We regard the subject of this chapter of the utmost importance, as tending, if properly considered, to place before the lawyer the real and unavoidable causes of failure on the part of the physician in the treatment of disease. Could the capable and conscientious legal adviser clearly understand and be thoroughly impressed with the inherent elementary difficulties in the practice of medicine, he would be slow to counsel prosecutions of medical men; and had the court the same knowledge, we believe that a nonsuit would be the summary termination of many a trial for alleged malpractice. It is upon these subjects that the legal profession is in sad want of information, and we turned to this chapter, in the belief that the medical education of the author would enable him to elucidate in precise and accurate terms, the true sources of failure in practical medicine of which the physician is himself so often painfully conscious. But we were disappointed. Although the general statements which it contains would suggest to the medical mind many of the difficulties with which he has to contend, there is wanting that specific information which the non-medical reader requires, to appreciate properly the reasons that with given modifications of internal or external conditions of the individual, the best efforts of the physician fail to accomplish a cure. Those well established principles should have been set forth in a manner to be readily comprehended by lawyers.

Chapter III. consists of a brief consideration of the question: What definite knowledge is possible and essential for the physician and surgeon. The following proposition will interest the medical reader: "The courts hold that the surgeon and physician must be master of that degree of knowledge which is reasonably within their reach." The remainder of the section is written, as far as we can discover, without point, or purpose. The author lays great stress upon inflammation, and accordingly he asserts that

the surgeon should have an accurate knowledge of this process. The importance of conservative surgery is illustrated, and the statement hazarded evidently on the authority of Mr. Skey, that the progress of surgery has been, and ever will be, characterized by a corresponding decrease of its operations, both in amount and severity. The truth is that the number and severity of operations increase with every advance of scientific surgery. The chapter closes with an appeal in behalf of the study of anatomy. Pertinent to the inquiry of this chapter, we copy from page 55, the following, in regard to the knowledge which a practitioner of medicine should possess:—

"The standard of ordinary skill, which is required of every physician and surgeon, it will be borne in mind, is that degree and amount of knowledge and science which the leading authorities have pronounced as the result of their researches and experience, up to the time, or within a reasonable time before the issue or question to be determined is made. It is not enough to plead that his treatment was that taught him by the ablest members of the profession and the best schools twenty-five years ago; because, in a science that is advancing with the rapidity of medicine and surgery—that is, by observation and experience, yearly, and almost daily, correcting errors in practice, and abandoning hoary-headed theories, the fallacy of which has become apparent, upon which the practice has heretofore been based—that is, receiving auxiliary agencies from all the rapidly advancing sister sciences—there will be new facilities afforded in practice year by year, and errors constantly exploded. The authority, therefore, that was at a previous day considered good, and upon which the court acted, may not, at this time, be admitted as the present standard of knowledge required of the physician and surgeon."

"In no department of surgery has there been a greater change and advancement in treatment than in that of amputations. An amputation that would have been justified by the rules of surgery, and the operator protected in court, twenty-five years ago, or even within less time than that, would now be repudiated by the best authority, and the operator justly chargeable with ignorance and unskilfulness."

"Old physicians and surgeons cannot, therefore, rely with safety upon their elementary education, and what they may have learned in practice. It is absolutely important, for the protection of the patient as well as the surgeon, if he assumes the responsibility of performing an operation fraught with so great interest, that he should make use of every reasonable means of knowing what is considered the best treatment at the time of the operation—not what would have been the proper course twenty years ago. A medical man cannot with any safety or propriety practise year after year without keeping himself informed as to the improvements of his science, especially if he practise surgery involving amputations, from which so many lawsuits result, and which are so fatal to the patient."

Having thus passed in review in the three preceding chapters the general medical and legal questions connected with malpractice, the author enters upon the consideration of the special surgical accidents which give rise to such suits. They are Amputations, Fractures, Dislocations, Diseases of the Eye, and Incised Wounds. These subjects occupy the seven following chapters. It would occupy too much space to pass these several chapters in review, nor, indeed, would it be profitable to the medical reader for us to do so. We have already had occasion to notice an apparent want of familiarity, on the part of Dr. Elwell, with the medical aspect of the questions which have arisen for discussion. This defect becomes a serious fault in this portion of the work, which is principally occupied with medical questions. While the legal rules and principles are stated with clearness and precision, the author betrays his weakness whenever he touches a purely medical subject.

The first sentence of the fourth chapter convinces us that the author has but superficially explored the field of malpractice, and hence can but indifferently appreciate the extent and importance of the work which he has so commendably undertaken. He asserts that "nine-tenths of all the cases of malpractice that come before the courts for adjudication, arise either from the treatment of amputations, fractures, or dislocations."

According to accurate statistics to which we have access in several hundred suits for malpractice, but little over two-thirds were for the causes above assigned. Of 142 suits growing out of amputations, fractures, and dislocations, but 8 were referable to amputations, 32 to dislocations, and the remaining 102 to fractures. We allude to these statistics not to prove that the subject of amputation or dislocations occupy too much space in this work, but to show that there were many other causes of malpractice suits equally (and in many instances far more) entitled to consideration than these. The practice of obstetrics has given origin to a large number of suits for alleged malpractice, and the medico-legal questions thence arising would be appropriate to the pages of such a work.

It is quite true that the same general principles of law are applicable to all, but the medical questions involved, which require to be established upon a firm basis for the guidance of lawyers and courts, are innumerable and should be elucidated, and as far as possible established in a work that is designed to aid both professions in arriving at the truth on medico-legal subjects.

Dr. Elwell quotes at length the opinion of Mr. Skey in regard to the various questions relating to amputations. The rules therein given are extremely judicious, and being clearly and yet concisely expressed, will be of great assistance to lawyers in determining the true issue of malpractice suits arising from this source. One adjudicated case is appended to the chapter.

In the definition of the different forms of fracture, and in the explanations of their nature, the author becomes himself so confused as to be unintelligible even to the medical reader. He speaks (page 79) of "*compound and oblique* simple fractures;" "a *comminuted one* involving great injury of the muscles, nerves, and bloodvessels; and yet, the cuticle being unbroken, it must be technically called a simple fracture; a compound fracture derives its chief importance from the greater extent of injury, as a general thing, to the soft parts of the limb; consequently much greater difficulty attends the healing process of the case;" a compound fracture of the tibia, because the bone is superficial, and the wound of the soft parts slight, "may be, in fact, really one of the most simple; while, on the other hand, the most severe, troublesome and dangerous injuries may be, technically simple, because the skin is not broken." It is not surprising that such explanations should give "rise to much confusion in the minds of those who have not given the subject much attention." The most common text book on surgery would, we think, have made this subject quite clear to the non-medical reader.

The most valuable portion of the sections on fractures is the digest of Prof. Hamilton's *Report on Deformities after Fractures*, which is the subject of Chapter VI.

Chapter VII. is devoted to the general consideration of dislocations, and though some of the difficulties with which the surgeon has to contend are correctly stated, yet we regret to find constant evidences of the author's lack of practical information on medical subjects, and an utter confusion of ideas

when he ventures to discuss them. We quote from page 108–9: "An ignorant surgeon will sometimes apply the bandages around the elbow joint, to which he applies his extension in such a way that it slips, and defeats the whole proceeding, or he will bind the elbow to a right angle, in order to get an immovable joint, giving unnecessary pain, and throwing the whole extending force on the forearm. This is an inexcusable error; so, of the lower extremities, the same principles apply. Again, the extending force being applied to the elbow, instead of the wrist, the bone is, in fact, being drawn up by the pectoralis major and latissimus dorsi, while through the medium of the triceps extensor muscle, is being drawn down, from which, the whole object is to separate and dislodge the head of the humerus. Both the scapula and the pelvis should remain as far as possible dormant, when extension is applied for the reduction of a dislocated femur or humerus."

We confess our inability to comprehend the author's meaning, either from the text or the context.

Several adjudicated cases are selected from English and American reports, and appended to this chapter, which are of great practical interest both to the lawyer and surgeon.

Chapter X. is devoted to the report of a case of alleged malpractice, in ophthalmic medicine, which was tried in the District Court, Cuyahoga Co., Ohio, at the October term, 1857. The disease seems to have been originally conjunctivitis, but subsequently sclerotitis, corneitis, and iritis were developed; the patient changed his physician several times, and recovered with impaired vision. He brought a suit against the physicians who first treated the eye. The questions which arose for the medical witnesses to determine were as to the correctness of the diagnosis, and the proper treatment of the several affections above mentioned. The depositions of Drs. Delafield and Wallace, of New York, and Drs. Dix and Williams, of Boston, were taken; and Professors Delamater and Ackley, of Cleaveland, who saw the case during its progress, and advised the treatment pursued, were important witnesses on the trial; the case was finally decided in favour of the defendant, and is one of great interest, not only to the ophthalmic surgeon, but to the general practitioner.

Chapter XI. contains the depositions of Professors Flint and Hamilton, of Buffalo, taken in a case of alleged malpractice in dressing an incised wound of the foot. The case never came to trial.

Akin to the responsibilities of the medical man are those of the druggist, the consideration of which is taken up before the subject of criminal malpractice is introduced. There is no class of persons in any community whose occupation more directly bears upon public health, than those engaged in retailing drugs. The druggist is a dealer in poisons; he supplies his customers, not with what preserves life and promotes health, but with what is essentially destructive of both. The articles which he sells are not designed for those in health, but for those who are sick. The vendor of provisions deals in that which is essential to life and health—the real pabulum vitæ; but the apothecary traffics in non-essentials, in poisons.

And yet no person is held less strictly accountable for the manner in which he conducts his business, than the apothecary. He may commence the retail of drugs without the slightest preliminary education; he may adulterate the articles which he sells to any extent he wishes without detection, and he may sell poisons without a physician's prescription, even to a child. The evils of this system are seen in the daily details in public prints of suicides, homicides, murders, and accidental deaths by poisoning.

The real criminal in these cases, the retailer of the poisons, always escapes detection, and generally even a censure. The remedy, however, for this great and growing evil is more easily suggested than applied. Stringent statutory provisions, establishing, first, the educational qualifications of druggists, and second, prohibiting the adulteration of drugs, and third, regulating their sale so that poisons should be dispensed only upon a physician's prescription, might be suggested as the basis of reform. But even where these legislative provisions already exist, the unlimited and unlicensed sale of drugs is carried on without the slightest check. Necessary as legislation undoubtedly is to a proper regulation of the retail of drugs, we must look to the pharmaceutists as a profession for the true remedy. The reform must commence by the organization of societies, through which can be established a proper standard of education for druggists. The American Pharmaceutical Association, now in the ninth year of its existence, gives the most gratifying evidence of the success which is to attend their efforts at internal reformation. We look hopefully to this organization, which is evidently rapidly increasing in influence, for the correction of the abuses to which we have referred.

In regard to the principles of law which apply to druggists, they are the same as those applicable to the vendor of provisions. But Dr. Elwell very pertinently adds :—

"More care should be exercised by those who mix poisons for internal use than is needed by those who sell fruit, food, and the like. Bad wines, provisions, fruit, and meat can usually be at once detected by the senses; while the character of medical substances and compounds is only discovered by the careful analysis of an experienced chemist."—p. 169.

Two adjudicated cases are given, in the second of which the true responsibilities of the druggist are brought prominently forward. In this case the druggist negligently allowed cantharides to mix with some snakeroot and Peruvian bark which the plaintiff purchased and took as a tonic, and was thereby greatly injured. The following opinions of the court place in a proper light the duties and responsibilities of druggists :—

" 'Now, if a man who sells fruits, wines, and provisions is bound, at his peril, that what he sells for the consumption of others shall be good and wholesome, it may be asked, emphatically, is there any sound reason why this conservative principle of law should not apply with equal, if not with greater, force to vendors of drugs from a drug-store, as from usage may be presumed, a great variety of vegetable and mineral substances of poisonous properties, which, if taken as medicines, will destroy health and life, and the appearances of which are known to but few, except they be chemists, druggists, or physicians? The purchasers of wines and provisions, by sight, smell, and taste, may be able, without incurring any material injury, to detect their bad and unwholesome qualities; but many are wholly unable, by the taste or appearance of many drugs, to distinguish those which are poisonous from those which are innoxious, so close is their resemblance to each other. Purchasers have, therefore, to trust the druggist. It is upon his skill and prudence they must rely. It is, therefore, incumbent upon him that he understand his business. It is his duty to know the property of his drugs, to be able to distinguish them from each other. It is his duty so to qualify himself, or to employ those that are so qualified to attend to the business of compounding and vending medicines and drugs, as that one drug may not be sold for another, and so that, when a prescription is presented to be made up, the proper medicine, and none other, be used in mixing and compounding it. As applicable to the owners of drug-stores, or persons engaged in vending drugs and medicines by retail, the legal maxim should be reversed. Instead of *caveat emptor*, it should be *caveat vendor*. That is to say, let him be certain that he

does not sell to a purchaser or send to a patient one thing for another, as arsenic for calomel, cantharides for or mixed with snakeroot and Peruvian bark, or even one innocent drug, calculated to produce a certain effect, in place of another, sent for and designed to produce a different effect. If he does these things, he cannot escape civil responsibility upon the alleged pretext that it was an accidental or an innocent mistake; that he had been very careful and particular, and had used *extraordinary care and diligence* in preparing and compounding the medicines as required, etc. Such excuses will not avail him; and he will be liable, at the suit of the party injured, for damages at the discretion of the jury.' "—p. 192.

The three following chapters are occupied with the subject of criminal malpractice. Here we have no longer the question of skill, diligence, and care, but of intent, rashness, or want of due circumspection. The first authentic decision relating to criminal malpractice, by an English judge, was given by Sir Matthew Hale, who held that—

" 'If a physician gives a person a potion, without any intent of doing him any bodily harm, but with intent to cure or prevent a disease, but, contrary to the expectations of the physician, it kills him, this is no homicide; and the like of a surgeon; and I hold their opinion to be erroneous that think if it be no licensed surgeon or physician that occasions the mischance, then it is felony, for that he be not licensed according to the statutes. They are subject to the penalties in the statutes, but God forbid that any mischance of this kind should make any person not licensed guilty of murder or manslaughter.' "

Blackstone and most subsequent authorities coincide fully with Hale, and although numerous instances have occurred where the prisoner has exhibited the most criminal ignorance, if malice could not be proven he has been acquitted of the charge of murder and manslaughter on the strength of this decision. In the case of Rex *v.* Williamson, it was proven that the prisoner mistook the prolapsed uterus for the placenta, and forcibly lacerated it, and tore asunder the mesenteric artery, causing the patient's death, and yet the verdict was, Not guilty. For the court held that there was no evidence of want of attention on the part of the prisoner, and the fact that he had attended other women in confinement was taken as proof that "*he must have had some degree of skill!*" The first trial of the notorious charlatan, St. John Long, in 1830, shows the influence of this opinion still existing in the courts of England. On the second trial the court gave a more enlightened charge, as follows:—

" 'I have no hesitation in saying, for your guidance, that if a man be guilty of gross negligence in attending to his patient after he has applied his remedy, or of gross rashness in the application of it, and death ensues in consequence, he will be liable to a conviction for manslaughter.' "

In our own country, the leading case is that of Commonwealth *vs.* Thompson, which occurred in Massachusetts.[1] The prisoner, a quack, gave his patient emetics of lobelia until death ensued. Although it was proven on the trial that the prisoner showed the most criminal ignorance and indifference, the court was guided by the opinion of Lord Hale, and the want of statutory provisions of the State allowed the culprit to escape conviction.

The rule, as at present established, is, according to Dr. Elwell, thus stated by Boland, B., in the case of Rex *v.* Spiller:—

" 'The law, as I am bound to lay it down, and I believe I lay it down as it has been agreed upon by the judges—for cases of this kind have occurred of late more frequently than in former times—is this: If any person, whether a regular or irregular medical man, professes to deal with life or health of his majesty's

subjects, he is bound to have competent skill to perform the task that he holds himself out to perform; and he is bound to treat his patient with care, attention, and assiduity.'"

In another case, Lord Lyndhurst, C. B., held: When proper medical assistance can be had, a person totally ignorant of the science of medicine, takes on himself to administer a violent and dangerous remedy to one labouring under disease, and death ensues in consequence of that dangerous remedy having been so administered, then he is guilty of manslaughter.

These chapters on criminal malpractice, close with a case in which the prisoner violated the person of his patient under pretence of medical treatment. The case came before the highest criminal court of England, which held: "It has been suggested that were the act of the prisoner to be regarded in the light of medical treatment, it would be no offence. * * * The notion that a medical man might lawfully adopt such a course of treatment, is not to be tolerated in a court of justice."

Part First concludes with a chapter on Abortion, in which the nature of the act, and its criminality, are briefly considered in connection with the leading American case, viz., The People *v.* Madame Restell.

Having now passed in review that portion of the work which will especially commend itself to the profession for its novelty as well as practical interest, we have reserved but little space for a notice of Part Second on Medical Evidence. We regret this less, because most of the subjects in this division are fully treated in other works on legal medicine.

The chapters in Part Second, which will prove of the greatest interest to medical readers, are those which define the duties of medical witnesses. The chapters on Evidence in General, Experts, History and Importance of Medical Evidence, Duties and Responsibilities of Medical Witnesses, Privileged Communications, &c., include subjects upon which the medical profession have little accurate information. Dr. Elwell has brought within a small compass, the rules that should guide the medical witness in courts, and has divested them of much of that extraneous matter which tends to confuse and mislead.

The volume concludes with several chapters on the legal relations of insanity, on poisons as employed in the commission of crime, with brief sections on infanticide, effects of wounds in producing death, rape, and coroners' office and inquests.

In reviewing the work as a whole, our impressions of its general characters may be briefly stated. We have alluded to some of the faults of the work in passing; there are others of a serious nature. We refer to the style which is often very obscure and by no means free from grammatical inaccuracies. The arrangement of subjects also gives evidence on every page of haste or want of care in preparation. This is much to be regretted in a work that has been stereotyped. But overlooking these errors, it must ever redound to the honour of the author, that he has taken the initiatory step towards placing upon a proper foundation the civil responsibilities of medical men. Although he has not exhausted the subject, he has done much to establish the principles which are to lead to the development of malpractice in medicine as an important branch of medical jurisprudence.

S. S.

Art. XVI.—*Clinical Lectures on Certain Acute Diseases.* By Robert Bentley Todd, M. D., F. R. S., Author of "Lectures on Diseases of the Urinary Organs," &c.; formerly Physician, now Consulting Physician, to King's College Hospital, London. Philadelphia: Blanchard & Lea, 1860. 8vo., pp. 473.

The two previous works of Dr. Todd, on "Affections of the Nervous System" and on "Diseases of the Urinary Organs, &c.," established for him in this country as well as in Great Britain, a high reputation as a Clinical Teacher. The volume now before us has an additional interest as being his latest work; having been published but a short time before his lamented death.

But, a stronger reason exists for considering this one of the most important medical books of the year. It is remarkable in its contents; as expounding and illustrating views of pathology and practice, not exactly original or peculiar to the distinguished author, nor for the first time advanced by him in this book, but now most fully and emphatically stated, and differing widely from those commonly accepted. Opposition, upon both theoretical and clinical grounds, to what is commonly designated as the "antiphlogistic" treatment of inflammation, has been, for some years, especially associated with the names of Dietl and Skoda, and J. Hughes Bennett. But Dr. Todd, with similar views, if not a more rigid observer, was at least a more cautious reasoner, than either of his co-leaders in the "advanced" school, whether at Vienna or at Edinburgh. Whatever has fallen from his pen must be received with attention, and considered with the respect due to known ability, and undoubted honesty of purpose.

It has been, then, with the profoundest interest that we have read these Clinical Lectures, put forth as the final result and legacy of thirty years' experience, by one whose scientific training had been severe, his capacity acknowledged, and his opportunities ample. We rise from their perusal with the mind burdened with the portentous question "What is medical truth?" and it is only upon reflection, after a second reading, that we see how the harmony of inductive medical science can be found to include even these seemingly discordant notes.

Before discussing, however, the strongly marked peculiarities of the work, it will be right to give some analytical account of its subject-matter. It consists of fourteen Lectures, delivered in King's College Hospital, and illustrated by an account in detail of ninety-three cases.

The first three Lectures are upon "*Rheumatic fever.*" The view taken of the pathology of this disease by Dr. Todd, is that which is now universally adopted; that it is "a fever *sui generis*, of which the articular affection and the other phenomena are but clinical features—attendant symptoms, which may or may not occupy a prominent position." The term "metastatic," as applied to the internal inflammations occurring during rheumatic fever, is objected to, as the internal often occur simultaneously with the external local affections; the phrase "erratic tendency" being therefore preferable, in the case of rheumatism as well as of gout. In the latter, however, true metastasis does sometimes occur. The rheumatic attack is thus diagnostically described:—

"All these symptoms—namely, the articular swellings, the high-coloured and

loaded urine, the furred tongue, the tendency to heart affection—are present in all cases of rheumatic fever, nor can we regard a case as of this nature in which these symptoms do not exist."

Allusion is made, briefly, to a form of disease described by some of the French writers as "*puerperal acute rheumatism.*"

"Not unfrequently, after the puerperal state, the patient exhibits all the symptoms of ordinary rheumatic fever; the same profuse sweats, the swollen joints, the fever, the lithic urine. But in some cases the disease runs a more formidable course; the joints, instead of getting better after a time, continue to get worse, till at last the cartilages ulcerate, pus is secreted in large quantities, and fills the synovial membrane to distension; the articular extremities of the bones are laid bare, and the rough osseous surfaces grate against each other when the limb is moved. At the same time deposits of pus form in the muscles, and in other parts, even in the eyes. It is, in fact, a form of puerperal fever, due to inflammation of some of the uterine veins; this gives rise to the formation of pus, which, infecting the blood, excites articular and other inflammations in its passage through the circulation. Such cases throw light on the pathology of rheumatic fever, and show how a morbid matter, generated at one part of the circulation, and carried throughout it, may occasion serious disturbance in the local nutrition of the various parts through which it may be undergoing elimination."

The pathological definition of rheumatic fever given (p. 29) in the same lecture, is in accordance with the suggestion of the last paragraph. It is "a high state of febrile excitement, induced by the accumulation of a peculiar morbid product, or *materies morbi*, in the circulation; and the other symptoms which accompany it are merely caused by certain local derangements and disturbances produced at those points where its elimination from the system is taking place. This materies morbi is the result of a vitiated state either of primary or secondary assimilation, or of both." As to the *nature* of this morbid material, Dr. Todd does not furnish us with any enlightenment. The hypothesis that it is lactic acid, is considered to be probable, although not established.

The second and third lectures are chiefly occupied with the *treatment* of rheumatic fever. Seven different plans are reviewed; viz., by free venesection; by moderate bleeding and diaphoretics; by mercury; by colchicum and guaiacum; by opium; by bark or sulphate of quinine; and by *elimination.*

The first of these plans, by large venesection, is emphatically denounced.

The second meets with similar objections. Even the abstraction of moderate quantities of blood is considered by Dr. Todd to "*predispose to pericarditis and endocarditis,*" and to render the patient more liable to violent and troublesome delirium.

The mercurial treatment, carried to salivation, is very reasonably spoken of as "a remedy nearly as bad as the disease." It does not, moreover, at all guard the patient from pericarditis, endocarditis, pneumonia, pleuritis, or peritonitis. Dr. Todd has more than once seen *pericardial inflammation supervene while the patient was in a state of salivation;* a case of this kind (Case II.) having been narrated in the first lecture. It is remarked, at the same time, that rheumatic patients sometimes exhibit a distinct tolerance of mercury, and are with difficulty salivated.

Colchicum is regarded by Dr. Todd, in common with Garrod and most others at the present time, as exerting *no specific influence over rheumatism;* and guaiacum is believed by him to have even less claim to the same repute. Yet, he adds, "both these medicines, when given in large doses,

purge, and in such doses I have no doubt they may do some good, by eliminating the morbid material through the alimentary canal." Such medication, however, endangers prostration and debility, and a tedious convalescence.

The treatment of rheumatic fever by *opium*, revived by Dr. Corrigan, of Dublin, is spoken of with respect by Dr. Todd, although he does not recommend dependence upon it alone. A remarkable tolerance of opium is frequently exhibited; sixteen grains of opium, for instance, besides a grain of muriate of morphia, having been taken, *without narcotism*, in forty-eight hours, by a patient aged 23 years (Case I.).

Of *quininization* in rheumatism, Dr. Todd speaks well only in cases "where the sweating is colliquative, and the urine copious and pale, with abundant precipitates of *pale* lithates." He objects to its use from the beginning, as it tends to check secretion, and so may favour the development of internal inflammations.

The method of treatment which our author has adopted and recommended is called by him the *treatment by elimination*. The skin is the chief route by which the removal of the morbid matter is sought to be effected.

"The indications are, to promote the action of the skin, the kidneys, and the bowels; to use antacid remedies; and to give large quantities of fluid for the free dilution of the materies morbi, and to supply the waste caused by the drainage from diaphoresis and diuresis. The best way to promote the action of the skin is by opium, especially if you combine it with nitre and ipecacuanha.

"Our usual prescription is one grain of opium, one grain of ipecacuanha, and five grains of nitre, every two, three, or four hours, according to the urgency of the symptoms, and the need the patient has for opium."

The alkali preferred by Dr. Todd is the bicarbonate of potassa, in scruple or half-drachm doses every three hours. As a purgative, the usual combination of magnesia and Epsom salts is approved. In local treatment, our author considers leeching to *favour the erratic tendency*, and therefore to be injurious. He advises *cotton-wool*, wrapped with oiled silk, and in many cases *small blisters*.

During this treatment, good *beef-tea* is administered *from the first*, in small quantities, frequently through the day. "Often," says the author, "you will find it useful, and *always when there is a tendency to delirium*, to give *stimulants*, such as brandy or wine."

In the third lecture the management of rheumatism is considered still more in detail. The following practical remarks are interesting:—

"You need not be afraid to apply blisters in the early stages of the rheumatic inflammation of the joints. I believe the dread which some physicians have of applying blisters near inflamed parts—as near an inflamed lung, or pleura, or pericardium—is due to their having used blisters of *too great a size*."

Attention is called, in respect to prognosis, to the fact that the mitral valve may be affected, either so as to produce or so as not to produce impairment of the function of the valve; the former if the deposit be on the *auricular*, the latter if it be on the *ventricular* surface of the valvular curtains. In both cases you have a systolic bellows sound, and in both cases that sound is best heard at the apex of the heart.

"How are you to distinguish the one from the other? If the bellows sound be purely regurgitant, its position is strictly at the apex; it becomes in a marked way faint as you proceed to the base of the heart, and it is distinctly audible beneath the left scapula; and, in addition, the sign pointed out by Skoda exists, namely, a marked intensification of the second sound. If the bellows sound be

not regurgitant, you hear it well up to the base of the heart; you hear it only feebly, or not at all, at the left scapula, and there is no intensification of the second sound. I may add that in this latter case the heart's disturbance and the sufferings of the patient are in a marked manner less than in the former."

The complication of *delirium* in rheumatic fever is compared by the author, in its general characters, to delirium tremens. In many instances it ushers in pericarditis, pleurisy, or pneumonia; frequently it occurs after one of these maladies has set in, and sometimes it is present without them, so as to exhibit no necessary connection with any internal inflammation. These remarks are important:—

"Now, what is the nature of this delirium? It used formerly to be viewed as a metastasis of rheumatism to the brain, and to be treated antiphlogistically. I have treated some cases in this way and on this hypothesis, and I have had the opportunity, in consequence, I believe, of this treatment, of examining the state of the contents of the cranium in a few such cases. I can therefore assure you that there is no more inflammation, either of the brain or its membranes, in these cases than in delirium tremens. The membranes are perfectly free from abnormal deposit, the pia mater is pale, and the gray matter of the convolutions remarkably so, and the subarachnoid fluid is increased in quantity. These signs indicate not only that the brain has been imperfectly supplied with blood during life, but that the vascular pressure upon it is less than it ought to be, and that, consequently, an increase of the subarachnoid fluid has taken place. * * * In cases of this kind the brain is feebly furnished with a blood, poisoned, poor in colouring matter, and abounding in water."

Reference is made, at the same time, to the evidence adduced by Dr. George Burrows (*On Disorders of the Cerebral Circulation*), teaching us that whenever we meet with a case of delirium, especially of rheumatic delirium, we should diligently explore the region of the heart, and watch the condition of that organ carefully from day to day. Yet Dr. Todd has seen this delirium in persons of strongly-marked rheumatic or gouty diathesis, accompanied by all the signs of rheumatic fever—the sweats, the furred tongue, and the lithic urine—and not only without cardiac, but even without articular affection. He believes the rheumatic delirium to occur much more often after bleeding, or in weakly subjects, than in sthenic cases, or those of patients who have not been reduced by treatment.

As to the management of this symptom, viewing it as a signal of distress, our author urges prompt and watchful *support* of the system. All evacuation, by sweating, purging, &c., must be arrested. Nourishment must be given frequently, in small quantities, of beef-tea, arrowroot, milk, and, he continues, "it will be always necessary to conjoin with this wine or brandy, or porter, also to be given in small and carefully adjusted quantities. If the patient be wakeful, sleep must be procured by the free administration of opium."

In cases of rheumatic fever, with or without delirium, Dr. Todd calls attention, at the close of the same lecture, to a sign of importance, as indicating the propriety of more generous treatment, even although the articular affection still continue troublesome. It is the passage of *pale urine*, in good quantity, either without precipitate, or with a greater or less quantity of pale lithates.

The fourth and fifth lectures are upon *continued fever*. Referring to the researches of Stewart, Jenner, and others, in Great Britain, America, and the continent of Europe, our author considers that it may be fairly admitted that there are three varieties of continued fever—the typhoid,

typhus, and relapsing fever—each produced by a distinct, although doubtless very similar, poison.

The last of these forms, the *relapsing* fever, is merely mentioned, as being of comparatively rare occurrence. As a form of continued fever, our own observation and acquaintance with the medical literature of this country would incline us to ignore it altogether. Its adoption in classification by English writers appears to be chiefly due to the descriptions of Dr. Jenner; although Drs. Douglas, Murchison, Peacock, and others, also give accounts of it.[1] The history of its prevalence at Edinburgh in 1843 and 1844, as recorded by Dr. Halliday Douglas (*Northern Journal of Medicine*), would, but for the non-rural nature of the locality, inevitably suggest a *miasmatic* origin. Upon the whole, although there is no question of the occasional occurrence of relapses after typhus as well as after typhoid fever, we are obliged to subscribe to the language of the editor of Dr. Bartlett's work,[2] who observes that "if there be a *distinct* febrile affection to be called relapsing fever, he believes that it has not been his fortune to see it."

The first of Dr. Todd's two lectures on fever (Lecture IV.) contains the history of a fatal case of typhoid fever, with instructive remarks, especially upon the modes of termination of that disease. One of these, lost sight of by some observers, is "the absorption of a matter from the ulcerated surfaces of the bowel, which, circulating with the blood, exercises a poisonous and depressing influence on the system; a matter of the nature of, if not identical with, pus, which is absorbed, &c." This is illustrated by allusion to other forms of pyæmia, to which, however, a subsequent lecture is devoted.

We pause only to quote a few characteristic expressions at the close of the fourth lecture, upon the subject of treatment.

"I wish to caution you against the morbid fear of over-stimulation, which leads many to adopt an opposite or a vacillating course, and to allow their patients to die from exhaustion. * * * I am convinced that it is much better to err on the side of over-stimulation than not to give enough; for if we have over-stimulated a patient, it is very easy to pull him down again; there are plenty of appliances and means for this purpose; but if the patient sink too low, nothing is more difficult than to restore him."

We are happy to find, however, on the same page with this *carte blanche* of stimulation, the candid testimony that, of continued fever, "the mild cases—and, fortunately, in many epidemics these are the most numerous—do perfectly well on a very moderate amount of nourishment, with little or no alcohol."

Dr. Todd approves of the use of opium and astringents when, in typhoid fever, there is reason to fear that the bowels are ulcerated. He has no timidity, in such cases, as to the effects of inaction of the bowels, having never seen any bad consequence from their not acting even for four or six days.

The pathology and clinical history of typhus and typhoid fever, and their complications, as illustrated by several interesting cases, form the subjects of the fifth lecture. *Pneumonia*, properly so called, our author believes to be an "extraordinary" complication of continued fever; many cases, supposed to be such, having the character, even when fatal, of *passive congestion*, producing "carnification." Similar congestion may also occur in the brain; from toxæmic sluggishness of the circulation; although Dr. Todd doubts the validity of the evidence relied upon in regard to this. He remarks that

[1] See Bartlett on Fevers of the United States, p. 244.
[2] On Fevers, &c., p. 252.

"much of the congestion of the brain observed after death is due to the *mode of dying*." Further:—

"The subarachnoid effusions which we meet with now and then after fever are not of an active kind. They are the result of a certain shrinking of the brain, fluid being poured out to fill up space. Do not fall into the mistake of supposing that an effusion of this kind is instrumental in causing comatose symptoms. It, in truth, exercises no more than the normal pressure which seems a necessary condition of the brain's nutrition."

Dr. Todd uses, as local remedies for the coma of fever, blisters to the scalp or nucha, and the cold effusion or douche; the latter being most applicable before great exhaustion has supervened. We cannot wonder that the good effect of such measures has been thought, by some practitioners, to justify a somewhat different view of the condition of the cerebral circulation from that taken by our author; although we are fully convinced, that his opinion of the essentially *toxæmic* and *non-inflammatory* nature of the brain-symptoms in continued fever, as usually met with, is correct.

The occurrence of a *turn* or *crisis* in fever, often with some kind of copious evacuation, is recognized, as observable in many cases, "at the end of the second or third week; more commonly the latter."

Erysipelas is the next topic considered, in the sixth and seventh lectures. The description of the general history of the disease, in Lect. VI., although full, need not detain us, except to note the statement, not, we think, equally familiar to all, that erysipelas very *frequently begins* in the throat; and to advert to the remarks upon the course and treatment of erysipelatous *œdema glottidis*. The latter is well spoken of as "one of the most formidable affections to which the human frame is liable." Dr. Todd's treatment for this, when the dyspnœa is great, is the prompt resort to *tracheotomy*.

Two cases are narrated, in which this operation proved successful; the recovery of the patients under such unfavourable circumstances being, in great measure, referred by Dr. Todd to their having been, after the operation, "well supplied with food and stimulants," in small doses at short intervals. Both of them were fed upon strong beef tea, with half an ounce of brandy every hour or two, besides quinine, ammonia, and chloric ether; and, in one, quinine and beef-tea were also injected into the rectum.

This, however, constitutes the mode of practice of Dr. Todd in *all cases* of erysipelatous disease.

"The upshot of all I have to tell with respect to the treatment of erysipelas, is, to give stimulants and nourishing food freely, and from the very commencement of the attack. Don't trouble yourselves with too much attention to the secretions. . . . . As soon as you are satisfied that the patient is labouring under erysipelas, at once begin to administer stimulants and nourishing food, using the precautions I have mentioned; and what I wish above all things to impress upon you is, that this stimulating treatment should be employed from the very beginning of the attack."

Alcohol is even considered, by Dr. Todd, as an *antidote* for the erysipelatous poison. Tincture of sesquichloride of iron is looked upon, in comparison, as a trifling remedy.

In examining the cases, seven in number, selected to illustrate this mode of treatment in King's College Hospital, we observe that only *one* is spoken of as "of good general health and temperate habits." Each of the others is deficient in one or the other respect; being noted as "intemperate," "hysterical," "greatly overworked," "having had fourteen children," or "past middle age, and, therefore, not the most favourable subject for

acute disease." Now, this must be looked upon as important; and it will probably be again alluded to hereafter, in our consideration of the general basis of Dr. Todd's therapeutics; but, *en passant*, we must remark, that *even erysipelas*, to our view, presents ground for the distinction between asthenic and sthenic cases. We are sure that we have seen scores of cases of erysipelas, many of them, too, in hospital practice, recover without one drop of alcohol; and we cannot feel satisfied that, in *all* of these cases, half an ounce of brandy every hour or two would have been a safe addition to their treatment.

Lecture VII. is occupied with "Erysipelas of the Fauces," "a form of inflammation believed to be erysipelatous, which, commencing in the throat, confines itself entirely to the faucial region." The affection is not a common one, and, with the exception of Elliotson, appears to have escaped the notice of systematic writers. Its peculiarity consists in a sort of *paralysis of the pharynx*.

"If you look into the throat of a patient labouring under this affection, you will find the pharyngeal mucous membrane exhibiting a peculiar dusky-red colour, the fauces will be perfectly open, and you will be unable to discover any mechanical impediment to free deglutition; and if, now, with your finger, or a pen or probe, you touch the back of the pharynx, you will find that none of the pharyngeal muscles are thrown into action, as they invariably are in a state of health; in other words, you cannot excite the reflex actions necessary for deglutition."

The attempt to swallow either liquids or solids is attended by choking, and the sufferer is in danger of dying for want of food. Very patient spoon-feeding, injection by the rectum, or the use of the stomach-pump, is often required. Alcoholic stimulation is strongly recommended in the treatment of this affection, with the local application of the solid nitrate of silver, or of a strong solution of it. Seven cases are related, of which four were fatal.

The diagnosis of this form of sore throat from that of scarlet fever, is determined by the absence of the ulceration, and sloughing tendency of the latter; from that of diphtheritis, by the non-existence of the characteristic exudation; from that of influenza, which it most resembles, by the greater swelling in the region of the tonsils, and the less lax and œdematous appearance of the fauces and pharynx.

Lecture VIII. is "On the Treatment of Acute Internal Inflammations." This we will pass over for the present, as it may be most conveniently considered in connection with the final lecture.

"Pyæmia" is discussed in Lecture IX. It is described as consisting in a poisoning of the blood by the admixture with it of

"Either pus entire, and in its purest form, taken up directly into the circulation by an open vessel, or generated in some part of the vascular system; or unhealthy pus—decomposing, acrid, septic—received in a similar manner; or some of the amorphous elements of such pus, received by reabsorption into the vessels; or, some other animal matter, allied perhaps to pus, the product of disease during life, or of decomposition after death; or, lastly, a peculiar animal poison derived from the recently dead human body, or that of some other animal. All these contaminations of the blood seem capable of giving rise to nearly the same train of general and local phenomena."

These phenomena are briefly described, in connection with cases, as, rigors, fever of low type, utter prostration of strength, and the rapid successive formation of circumscribed purulent formations or *deposits* in the lungs, liver, serous or synovial sacs, muscles, or areolar tissue. The severity

of a case depends, according to our author, more on the *quality* than the quantity of the morbid matter taken up. This view is still more emphatically urged by Dr. J. H. Bennett,[1] who, with Boyer and Bonnet, supported by experiments of his own, believes that *good pus* produces, when introduced into the blood, no seriously detrimental effects. There is much reason, therefore, for the adoption of the term ichoræmia (Virchow), or septichæmia (Vogel), instead of *pyæmia*, as either of these terms indicates more clearly the *contamination* of the material necessary to produce the symptoms of the so-called purulent infection.

Dr. Todd, however, appears to have placed some confidence in the experiments of Gaspard and Cruveilhier, upon which the *obstructive* theory is founded. Pyæmia is referred, by him, as by most others, in its origin, to suppurative phlebitis, in many cases; in others, to surgical injuries of bones; to the traumatic state of the uterus after child-birth; to erysipelas, with subcutaneous suppuration; to ulcerative absorption in typhoid fever; and to dissecting or other poisoned wounds. The cases given in illustration of the history of these different forms of the disorder are interesting and instructive. The treatment advised is summed up in one word, *support*. "We are," adds the author, by our present knowledge of pyæmia, "practically cautioned against the fashion (now happily becoming extinct), of giving depressing medicines to puerperal women; and the same remarks will apply to the treatment of severe surgical operations, and of injuries."

The tenth, eleventh, twelfth, and thirteenth lectures, are upon "*pneumonia and its complications.*" *Simple* pneumonia is considered by Dr. Todd as rare; *pleurisy* (pleuro-pneumonia) being in nearly every case coexistent with it, to a greater or less extent. Further, we may have pneumonia complicated with *acute gout*, or with *rheumatic fever;* with *tubercles;* or, sometimes, in the absence of tubercular deposit, with the *strumous diathesis;* besides *typhoid*, and *traumatic* pneumonia. *Lobular* pneumonia, spoken of as occurring in young children, associated with bronchitis or hooping-cough, is not recognized by our author; his belief being that the condition so described is really one of carnification, due to the exhaustion of the air from parts of the lung by excessive expiratory efforts.

It is unnecessary to dwell long upon Dr. Todd's exposition of the generally admitted facts in the history and diagnosis of pneumonia. In regard to the distinction between it and pleurisy with effusion, by physical exploration, the sign of *ægophony* is mentioned, without any allusion to the strong reasons adduced by Skoda for doubting its validity as a pathognomonic sign. Very interesting observations are given, in the twelfth and thirteenth lectures, illustrated by tabular records, upon the disappearance of chloride of sodium from the urine during the hepatization of pneumonia, as shown first by Redtenbacher; and its abundance at the same time in the sputa, as afterwards ascertained by Dr. Beale. Examination was also made of the sputa, in one well marked case, to determine the presence or absence of grape-sugar; but none was found to be present. The phenomena concerning the chloride of sodium appear to be of constant occurrence; showing, as Dr. Todd remarks, that the disease involves profound changes in the chemistry of life—in the interchanges between the blood and the tissues, and in the chemical constitution of the blood itself. Dr. Todd states that—

"When recovery takes place in this disease, there is always, I believe, some kind of *critical* evacuation, either by sweats, or by urine, or by the free discharge

[1] On Leucocythæmia, 1852; also, Lectures on Clinical Medicine.

of a purulent fluid from the bronchial tubes, or by pulmonary abscess. A *critical* evacuation by the urine is by far the most common; from the sixth to the tenth day this excretion being generally considerably increased, and having a tendency to deposit lateritious sediments. The *critical* evacuation next in order of frequency is that by sweating; and if treatment were adopted to favour the secretion of the skin, this would be far more common, I believe, than has hitherto been observed."—p. 275.

The subject of the *treatment* of pneumonia, as enunciated by Dr. Todd, remains to be considered. Its principle is confessedly different from that supposed to have been attested by long experience, and, until of late, adopted as a part of universal belief. Let us describe it in the author's own words:—

"It consists, not in the use of remedies directly antiphlogistic (so called), that is, of remedies intended directly to knock down inflammation by withdrawing blood, the supposed fuel of all inflammation, and by reducing vital power; but in the employment of means which will promote the free exercise of certain excretory functions, by which the blood may be purified, and certain matters may be removed from the system, which, remaining in it, tend to keep up a state very favourable to inflammatory affections. The remedies to which I refer, tend to promote the free action of the skin and kidneys, and, in a less degree, that of the intestinal mucous membrane; whilst, at the same time, a free stimulation is maintained of that part of the skin which is near the seat of pulmonary inflammation; and an essential part of the treatment is, that while these remedies are being used, we do not aim at reducing the general powers of the system, but rather at upholding them by such frequent supplies of nourishment, easy of assimilation, as may be readily appropriated, and duly apportioned, both in quality and quantity, to supply the waste which, during the inflammatory process must necessarily take place in the most important tissues of the body, especially the muscular and nervous."—p. 199.

Nor does Dr. Todd allow that this treatment is merely expectant, or trusting to the powers of nature alone.

"I do not admit that the frequent application to the chest of such counter-irritants as mustard or turpentine (three or four times a day) and large doses of acetate or citrate of ammonia, and occasional purging, exercise no influence, either upon the whole system, or upon the local disorder."—p. 209.

Tartar emetic receives but moderate favour from our author. He confirms, however, the observation of Davies, Watson, and many others, that this drug acts best when it neither sickens nor purges the patient.

Opium he considers not advisable in large doses in the simple forms of pneumonia, because it has some tendency to produce further congestion of the lungs and to depress the heart.

Our idea of the management of pneumonia by Dr. Todd would still not be complete, without reference to one or two other passages. Thus, p. 265:—

"An important feature in this plan of treatment is to counteract, as far as possible, every influence of a depressing nature; and *though the exhibition of stimulants does not form a necessary part of it*, still the aim should be to uphold the patient's strength." "When the vital powers are clearly depressed, with a pulse *increasing in quickness*, or when the patient has been previously accustomed to live well, or in the habit of indulging in the use of alcoholic drinks, then wine or brandy, or, what is really the proper way of expressing it, *alcoholic food* must be exhibited."

The conditions alluded to in the last paragraph are important; as, although rarely mentioned by the author in these lectures, they seem to have guided him in actual practice. Examining the history of the cases described in these four lectures, as treated by Dr. Todd, we find that, of the

nine, five cases were treated without any alcoholic or other stimulant, although beef-tea and milk were given; one of these five, moreover, having been an intemperate person; while, of the four who took stimulus, one was noted as intemperate, one had been much exhausted by poisoning just before the attack, a third began with the use of wine only on the *twelfth* day, and the fourth with small doses (two teaspoonfuls every four hours) on the fifth day. This is, after all, not extraordinary practice for the wards of a city hospital. In one of the above cases, moreover, *ten leeches* were applied to the patient's side, on account of the obstinacy of the pain; and in two, calomel was given in pill with opium; although in one of these it was abruptly stopped, lest the rapid improvement occurring should be unjustly ascribed to the drug.

Let us, however, inquire further into the *theory* of the author; in the exposition of which we will find some expressions, more striking than any of those yet alluded to, in regard to the therapeutics of inflammatory disease, and the pathological and experimental basis upon which its treatment is founded.

His view of the pathology of pneumonia is expressed by defining it as—

"That condition of lung which leads to the formation of a plastic deposit in the cavities of the air-cells, which plastic material, by filling up the interior of these cells, and the finest bronchial tubes, consolidates the previously soft and crepitant pulmonary tissue."—p. 236.

It is only after expanding this definition into a full description of the hepatized state, that it is added, that—

"This state of red hepatization is, nevertheless, preceded by one in which the blood is delayed in that portion of lung about to become hepatized, and, very probably also attracted to it in increased quantity—a state, in fact, of what has been called *active congestion*; in this consists the first stage of pneumonia."—p. 237.

Explanation of this "*active congestion*" is then attempted, by the introduction of irritating matter—"nervous derangement," "increased action of the heart," "dilated and relaxed capillary walls," &c. It is really astonishing that those phenomena, most familiar and frequent of all in the domain of morbid processes, should still be, as they always have been, subjects of such various and often dogmatic controversy. Nor can we feel much less astonishment, that the most obvious and demonstrable of these phenomena should be, by physiologists and pathologists, at the present moment, systematically ignored, or, at least, depreciated far below their real importance. The active part taken by the arteries in the normal circulation of the blood, and the *reflex* excitement to which they are subject under morbid local disturbance, are overlooked, or denied, by almost all who have written, within the present decade, upon the physiology of the circulation, or the pathology of the inflammatory process. Baffled, and almost disgusted, with the vain hypotheses of the preceding periods, concerning "phlogosis," "congestion," "capillary spasm," &c., the most laborious students of nature have resolutely devoted their whole attention to the region opened, as a new field, by the use of the microscope. The phenomena of nutrition, of the interchange between the tissues and the blood, of the capillary forces, occupy them, to the exclusion of other facts, equally important, but lacking the fascination of recent development. Thus, in the works of Virchow, of Bennett, and of Todd, the very terms in ordinary use become transformed from their accustomed sense; "inflammation" means only "deranged nutrition," or "exudation," instead of including, as it always has done, and

should do, these elements, *with the intermediate one*, as important as either, viz., *hyperæmia;* active in the environs, and static at the centre, of the inflammatory process.

We will not dwell upon this complicated subject, further than to express the regret, that therapeutical reasonings of such important practical bearing have been made to rest upon so fallacious, not to say distorted and imperfect, a construction of the facts of physiological and pathological science. If we are to have a "revolution" in medicine, if, as we are told by Dr. Bennett,[1] we are now to await "the approaching downfall of empirical practice," let us at least be warned by the fate of so many "provisional" establishments, and look well to the platforms of those who would be leaders. Rather, let those who aim neither to lead nor to be led, save by "*magis amica veritas*," calmly weigh all new facts, not forgetful of the old; so that safe reform, when demanded, may be effected, without the agitation or the ultraism of innovation.

Returning to the views set forth in the work under notice, we find (p. 260) the statement, that a tendency exists, in most cases of pneumonia, towards improvement in the general and local symptoms, with sweating, free expectoration, &c., *from the eighth to the twelfth day*. It is the rational purpose of the physician, then, to aid and promote this natural process of recovery, by eliminative measures, along with such as sustain the vital force. Dr. Todd knows of no treatment which will "cut short" pneumonia. If the term be applied by him only to the condition of actual *exudation*, it will certainly be necessary for all practitioners to agree with him; only, with an appropriate change of phraseology, those of the "old school" must insist, that the timely use of local or general bloodletting may, sometimes, in the forming stage of active congestion, *prevent* or *mitigate* pneumonia. The importance of *time* in the treatment of pulmonary inflammation, is recognized by Dr. Todd, in his quotation of the statistics of Grisolle. The cases narrated in the volume before us were none of them admitted into the hospital earlier than the third day; several still later; the time for active depletion might, according to any school of modern practice, have then passed by.

We must not omit referring to a passage in Lecture XIII. (p. 277), in which our author expresses a qualified assent to the occasional employment of bloodletting:—

"If blood be taken, it should only be with the view of relieving pain, and for this purpose the application of a few leeches over the painful spot is the most successful plan; but when the dyspnœa is extreme, it is sometimes expedient to take a little blood from the arm. Those of you who are in the habit of attending my hospital practice will bear witness how very rarely I have recourse to this proceeding."

In another place (p. 250) he remarks that pleurisy exhibits, more than pneumonia, the characteristics of a (so-called) *sthenic* disease; and that patients labouring under inflammation of the pleura, bear bleeding better than those who are suffering from inflammation of the lung.

These expressions lead us to observe, *first*, that a wider difference exists between Dr. Todd and others, as, for instance, Alison, or Watson, or Wood, in *theory* than in *practice*, in regard to the treatment of inflammation; and, *secondly*, that so far as difference exists, it may find explanation,

[1] Clinical Lectures, Introduction, p. 18.

to a certain extent at least, in the peculiarities or circumstances of experience.

On the first point, it may be said, that some errors of theory as to the *rationale* of antiphlogistic treatment, have undoubtedly prevailed. If it has been, as Dr. Todd asserts, a "notion, prevalent in the schools," that "certain acute and sthenic inflammations are attended with an undue exaltation of the *vital forces*, both local and general, and that these must be reduced before the inflammation will yield," then it is certainly high time that such a notion should be corrected. For our own part, we are not aware of the existence of any form of disease whatever, in which it is a legitimate object of the physician to reduce, by treatment, the strength, or "vital forces" of the patient. But this does not prevent our occasional resort to the careful and moderate abstraction of blood, for the purpose of restoring the balance of the circulation in its disturbed states. And we believe it to be a mere imagination that the withdrawal of a few ounces of blood must *necessarily*, in *all cases*, make the patient weaker than he would otherwise become with the progress of his malady. There is no experience more certain than that, in cases of high sthenic inflammation, in the early stage, bloodletting promotes diaphoresis, diuresis, and the action of the bowels; the *very objects* which Dr. Todd sets before us, in his eliminative treatment.

In regard to the bearing of personal experience upon the opinions taught in this volume, it ought not to be forgotten, that its contents are based upon the clinical results of a hospital in a great city—the city of London. No doubt can exist that the peculiarities of local circumstance, atmosphere, food, and habit of the denizens of such a metropolis must affect, to a most important degree, the type, history, and therapeutical indications of their diseases. It is thus that, without assenting to all the theoretical views of our author, we can explain the fact that, in the course of a thirty years' experience, in and out of the hospital, but still in a London atmosphere, and chiefly upon London patients, he has, in pneumonia, "tried all ways—calomel and opium—bleeding—tartar emetic—and others which have been proposed," and has found that under each one of these a great number of deaths occurred; or, even, that the number of deaths should seem to be reduced, when in his hospital practice, the administration of milk and beaf-tea, and occasionally alcohol, had been introduced. We use the term "occasionally," because, although the author's own expression is "in most cases I give wine or brandy early," we have seen that in those adduced in these lectures, for illustration, it was prescribed in less than half, and in them only under circumstances of special exhaustion or previous intemperance. We are led, by these considerations, to the subject of the closing lecture of this volume (Lect. XIV.) Its caption is "On the therapeutical action of alcohol."

The points dwelt upon in this lecture are, 1, the manner in which alcohol finds its way into the system, and the organs or textures on which its influence is most directly exerted; 2, the "mechanism," so to speak, of its action on the body, and how it may operate as a poison; 3, how far it may be used as a therapeutic agent, and the manner in which it may be employed as such, whether in acute or chronic diseases.

Especial notice is taken, upon the first of these points, of the simplicity and rapidity of the process of appropriation of properly diluted alcohol, when ingested. This renders it eminently useful as *food*, when the digestive powers are impaired by disease.

The principal influence of alcohol, when freely or poisonously taken, is

upon the *nervous system*. Generally speaking, Dr. Todd does not consider (p. 288) the symptoms referable to the *digestive organs*, to take a prominent place among those induced by it; although we are somewhat at a loss to reconcile this statement with one made in a subsequent place (p. 306), that "the signs upon which I recommend you to place your chief reliance, as indicative of the supply being too much, are *mainly referable to the digestive organs*."

Of the various unfavourable effects which alcohol is capable of producing, it behooves the practitioner (says our author) to observe that inflammation of internal organs is not one. Yet, in view of the fact, which he acknowledges, that strong alcohol, applied directly to any mucous membrane, will cause it to inflame, and of the vascular excitement, local and general, so familiar as one of its effects, it is not wonderful that it should have been supposed capable of inducing internal inflammations. Most probably, however, Dr. Todd is right in his implication that, whatever part alcoholic excess may take in the causation of cirrhosis or other organic degenerations, it is not by instigating inflammation of the organs involved.

"I have never seen," says he (p. 290), "nor heard, nor read of any authentic case in which inflammation of the lungs, heart, liver, kidneys, bowels or brain was attributable to the ingestion of alcohol." "I think, then, we may discard the popular prejudice, that alcohol causes inflammation, and that therefore it ought not to be given in inflammation."

A rational exposure is given of the ordinary fallacy, in regard to stimulation and "corresponding secondary depression;" showing that it is only when inordinate or inappropriate quantities of alcohol have been taken, that any resulting depression follows exaltation.

Carefully given, alcohol is considered by Dr. Todd to increase the animal temperature; to strengthen the action of the heart: and, under proper circumstances, to reduce the frequency of the pulse; while it acts as an "aliment, appropriate to the direct nourishment of the nervous system, and to its preservation; its special adaptation to this system giving it an immediate exciting power, superior to that of any other kind of food." "The popular notion that alcoholic stimulants are not food, but a mere 'flash in the pan,' ought not to be encouraged by medical men in the present day," (p. 176, note). It is very properly observed, however, that the successful use of alcohol in the treatment of disease depends very much on its *mode of administration*. It should be given in such doses as experience shows are assimilated with the greatest ease.

"You should not order so much brandy or other spirit to be given *daily*; but you should direct a certain quantity—say a teaspoonful or a tablespoonful—diluted with water, to be administered every *half hour*, every *hour*, or every *two or three hours*, according to the nature of the disease and the actual condition of the patient."

One of the most important effects ascribed by the author to the "early administration of alcohol," in "all exhausting diseases, and in all acute maladies accompanied by high fever (p. 298)," is the prevention or mitigation of *delirium*.

"This fact as regards the influence of alcohol in the *prevention* of delirium, is one of the most important which the clinical observation of cases, treated by stimulants, brings out. It is quite inexplicable by those who refuse to study the action and the mode of digestion of alcohol, and who, adhering to old prejudices, rest content with a practice under which, to say the least, great mor-

tality occurs, rather than be at the trouble of carefully investigating the powers of an important remedial agent." Lect. VIII. p. 174.

Flushing upon the first use of stimulants is not regarded by Dr. Todd as alarming; it indicates difficult digestion, and may be remedied by giving smaller quantities more frequently. Sometimes, he asserts, flushing will occur from insufficiency of the dose, and an increased quantity will get rid of it; just as an inadequate dose of opium disturbs the nervous system, whilst a larger one calms it (p. 176).

Coma, as in fever, although it forbids the use of opium, does not, with our author, contraindicate the employment of alcohol. The *excessive* use of the latter, it is admitted, will produce a comatose state, often difficult to distinguish from that forming part of an acute morbid process. The main points of difference are stated as being, 1, that the coma of alcohol is not so profound as that of disease; 2, that, if excited by alcohol, the omission of the stimulus for two or three hours will distinctly lessen the degree of stupor; 3, the persistence of the fumes of alcohol in the breath is a sign that it has been administered in excess.

We may sum up the teaching of this volume upon the subject now before us by extracting the following passages, from two different lectures (Lect. VIII. and XIV.):—

"Alcohol may be employed in all those diseases in which a *tendency* to depression exists; and there are no acute diseases in which this lowering tendency is not present."—p. 293.

"In a word, I cannot too strongly impress upon you that, to do good with stimulants, you must use them early, with care and watchfulness, in very definite quantities, and not in a vacillating or timid manner. They are agents of inestimable value for saving life under all forms of acute disease, and I can say with truth, from a large experience, that the harm which they do (*in disease*) is grossly and unfairly exaggerated, and always due to the slovenly administration of them. The opponents of their use argue from their outrageous abuse in health, against their careful and scientific use in disease. . . . . I say it after mature reflection and a long course of observation, that there is no point of therapeutics so deserving of the study of the earnest minded physician or surgeon, who is zealous to save life, as that of these agents, both in health and disease."—p. 176.

This is striking language, especially as the passage last quoted terminates a lecture "On Acute Internal Inflammations." No recent work, with which we are acquainted, contains parallel views of therapeutics. They are not, however, entirely new; exclusively of the preparatory dogmas of Dietl, Skoda, and Bennett, our own literature affords some resemblance to them, in a work published more than thirty years ago. In "Observations on the Autumnal Fevers of Savannah,"[1] the author, Dr. Daniell, advocates boldly a principle of practice almost identical with that of Dr. Todd; treating even "determination to the brain" with stimulants, in a manner which very naturally struck horror into the minds of his contemporaries.

We need hardly again allude to the position and authority of Dr. Todd, as interdicting the denial of his claim to be heard with attention, even in the assertion of doctrines still more strange than those contained in the book under review. Nor, to our mind, are the opinions to which we have last adverted, on the therapeutical action of alcohol, so essentially subversive of, or incompatible with, what we had been taught to consider sound

[1] Reviewed in the N. Am. Med. and Surg. Journ., vol. iii. 1827. Dr. Daniell, however, objected to ardent spirits; preferring porter, claret, capsicum, and bark or quinine.

medical doctrine, as those previously alluded to, in these Lectures, upon the pathology of inflammation, and the scientific basis of its treatment.

Upon the whole, to recommend this final work of Dr. Todd as a safe or appropriate guide to the inexperienced practitioner, is more than our judgment would suggest. But, on the other hand, it deserves the most attentive consideration of those whose matured experience and reason will permit them to "try all things, holding fast that which is good." As it is observed by the author in his preface, "it will not be affirmed by any one, that the doctrines of a science so abstruse and so difficult as pathology, should not be reviewed and reconsidered from time to time;" and, as he also remarks, the real basis for all pathological as well as therapeutical inquiry, made with a full appreciation of the facts of normal physiology and morbid anatomy, is *clinical research.* H. H.

ART. XVII.—*The Diseases of the Ear; their Nature, Diagnosis, and Treatment.* By JOSEPH TOYNBEE, F. R. S., Fellow of the Royal College of Surgeons of England, etc. etc. Philadelphia: Blanchard and Lea, 1860. 8vo. pp. 440.

THE work of Mr. Toynbee on Aural Surgery, which has been so long expected, and so long announced, has at length appeared. It lies before us, upon our table, fresh from the press of the American publishers. The latter have presented it to us in a dress, which leaves nothing to be desired. The author will have no reason to complain of the appearance of the American edition of his work, whatever may be its welcome by the American medical community. It is now our duty, as faithful journalists, not only to chronicle its advent, but to give some account of its contents.

The neglect, with which diseases of the ear were formerly regarded, is fast passing away. Every year brings to us ample evidence of the truth of Mr. Wilde's remark in the introduction to his treatise on Aural Surgery, that, "notwithstanding the remarks which we hear daily in society, or which we meet with in the periodic and manual literature of the day—that the treatment of diseases of the ear is an opprobrium to medicine—the progress which this branch of medical science is making, is in all probability as rapid as that in any other department of the healing art." The work, which contains this remark, was published in 1853, and is itself an admirable illustration of the truth of the author's statement. Mr. William Harvey, of London, published a book of very considerable merit, entitled the Ear in Health and Disease, in 1854. Mr. Harvey's book was followed in three years, by a bulky octavo volume of not less than six hundred and forty-four pages, on the same subject, from the pen of Mr. John Nottingham, a Liverpool surgeon. Across the channel, and in the same year with the appearance of Mr. Nottingham's volume (that is, in 1857), E. H. Triquet, of Paris, presented to the public an elaborate treatise on diseases of the ear, which he dedicated to the memory of Itard, and to M. Bouilland. In the meantime, English, French, German and American journals have contained a large number of observations and papers, from a variety of sources, on the anatomy and physiology of the auditory apparatus, and on its pathology and the treatment of its diseases. To all these works, which

have so recently appeared, without adverting to the previous labours of Itard, Kramer, Lincke, Wolff, Schmalz, Martell-Frank, Hubert-Valleroux, Deleau and Menière, we have now another, from Mr. Toynbee. Surely these are students, industrious and able, who are busy with the ear and its diseases. Thanks to their labours, the organ of hearing can no longer be regarded, as a *terra incognita*, and we may add that many of its affections have been rescued by them from the *opprobria medicorum*. Mr. Toynbee has long been recognized as one of the most prominent and successful labourers in this department of science. His investigations have probably done more to illustrate the pathology of the ear, than those of all other observers, whether English or Continental, and, therefore, we have looked forward to his treatise on the ear, which has just appeared, with unusual interest. The author states, in his preface, that it is the result of twenty years' labour. It would be strange, if it were not rich with new and valuable matter.

The book is a large octavo, of four hundred and forty pages. The text is illustrated by one hundred engravings, most of which are illustrations of the anatomy or pathology of the ear. The author, in his treatment of his subject, has divided his work into nineteen chapters. Of these, the first is introductory, and the two last treat very briefly of the deaf and dumb, and of ear trumpets. What Mr. Toynbee has to say of the nature, diagnosis, and treatment of diseases of the ear is embraced, therefore, in the intervening sixteen chapters. One chapter he devotes to the external ear. He includes under this division only that portion which is external to the auditory meatus. To the external meatus, itself, he devotes five chapters. Two of these five contain an account of polypi, and of osseous tumours of the meatus. The membrana tympani, its anatomy, physiology, and diseases, are discussed in three chapters. One chapter embraces the Eustachian tube; two, the affections of the cavity of the tympanum; and one, those of the mastoid cells. What is usually called "nervous deafness," or diseases of the nervous apparatus of the ear, are disposed of in two chapters. In the remaining chapter we are presented with an account of malignant disease of the ear.

Such is a brief statement of the contents of Mr. Toynbee's treatise. We should do equal injustice to it and to our readers, if we should not describe it more in detail, and yet our space forbids anything like a complete examination or analysis of the work. Fortunately, it is not necessary for us to follow Mr. Toynbee, step by step, through his book, in order to present a sufficiently exact notion of what it is. In reality it consists of three distinct parts. Of these, the first is concerned with the anatomy and physiology of the ear; the second, with its morbid anatomy; the last, with its pathology and its therapeutics. We do not mean that these three divisions are definitely laid down by our author, for we have just pointed out the order in which he has arranged and discussed his subject; we only mean that everywhere, from the auricle to the labyrinth, he describes the anatomy and physiology of each part or tissue, in connection with its morbid anatomy, its diseases and their treatment. By this method, we are deprived of a separate and connected account of the anatomy and physiology of the organ he is dealing with, and occasionally there is some confusion of description, which might have been avoided by a different division. But, on the whole, we are inclined to regard the method he has adopted as the best. It certainly possesses practical advantages, which are of great value.

It is needless for us to speak of the excellence of Mr. Toynbee's anatomi-

cal descriptions. His previous papers have earned for him the reputation of being a most careful and accurate observer. His account of the membranous and osseous meatus, of the membrana tympani and its different layers of tissue, of the cavity of the tympanum with its chain of bones, of the osseous and fibro-cartilaginous portions of the Eustachian tube, of the mastoid cells and of the internal ear, we prefer to any other we have met with. As we have just intimated, these anatomical descriptions are detached from each other. They form a sort of introduction, or preface to the different sections, wherein the morbid affections of different parts of the organ are discussed. His descriptions are always clearly given, and with as much brevity as the nature of the subject admits. Much of the ground which he goes over is old. It has been travelled over and described by earlier observers. But he has also been able to glean much that is new, and has given prominence to some minute points, which have been neglected or under-estimated. Very little reference is made to other observers, and occasionally the inference might be drawn, by one unfamiliar with the subject, that our author's descriptions are wholly novel. In one sense, we do not doubt they are; they are evidently from Mr. Toynbee's own observations and dissections, and not copied from others' labours. He is no copyist or compiler, but an original investigator. His physiological observations on the functions of the membrana tympani, the cavity of the tympanum, the chain of bones, and other portions of the ear, are highly interesting and satisfactory. We do not suppose that physiologists will agree with him in all his views, though, for the most part, they will be regarded as correct. He maintains, for example, that "for the perfect performance of the function of hearing," the sonorous vibrations must be confined to the tympanic cavity. In other words, he regards the cavity of the tympanum as a shut cavity, the tympanic orifice of the Eustachian tube being generally closed. The observations by which he establishes this seem to us conclusive, though we believe it is not universally accepted.

These portions of Mr. Toynbee's treatise, we refer to his anatomical and physiological descriptions, are highly interesting. Of themselves, they make a most important addition to our knowledge of the ear, and are the necessary basis of any just comprehension of its diseases, or of any rational treatment. Next to an exact knowledge of the anatomy and physiology of the ear, as a preparation for studying its diseases, comes a careful examination of its morbid conditions. The necessity of this is fully recognized by our author, who has presented us, in this volume, with a larger number of observations of the morbid conditions of the ear, than are to be found in all other works on aural surgery put together. We are to recollect, however, with Mr. Wilde, that "morbid anatomy is one thing--pathology another. The dead subject on the dissecting table teaches the student not disease, but the results of disease." It is of the utmost importance for us to know all the possible morbid changes of which the tissues of the ear are susceptible. Mr. Toynbee's work goes a great way towards completing our knowledge on this point. We cannot estimate too highly the value of his labours, in this direction, and we marvel at the patience and industry, which have enabled him to dissect two thousand ears or more. Only a portion of these dissections, however, are associated with the symptoms during life. Still a comparatively large number of observations are given, in which the history of the disease as well as the post-mortem appearances are recorded. This part of his work is its most valuable and original portion. We do not know of any treatise, in English, French, or German literature, where

so much and such valuable matter, of the same kind, can be found. This renders his work invaluable. It makes it a mine of wealth, from which future observers will draw illustrations of their studies, and which no student can ever afford to ignore. We think Mr. Toynbee deserves the highest credit for the indefatigable industry with which he has prosecuted the studies, of which this volume contains the result and the record.

What we have described as the third part of Mr. Toynbee's treatise, or its pathology and therapeutics, meaning thereby his description of aural diseases and their treatment, does not correspond in excellence with the rest. He describes disease like one who is more familiar with the ear on the dissecting table, than at the bedside, or in the consulting room. We should think that his clinical study of the ear was not so large or accurate as his observation of post-mortem appearances. We do not mean to apply this remark, by any means, to all of his descriptions of disease. Some of them are admirable illustrations of a complete and accurate account of an aural affection; as for example, his description of acute and chronic inflammation of the dermal tissue of the meatus, whether confined to the meatus, or extending as it does, in rare instances, to the brain.

In the chapter on polypi, three varieties of polypi are described; viz., the cellular, or raspberry polypus, the fibro-gelatinous polypus, and the globular polypus. This classification is a good one, and an excellent account of the microscopic appearances of each variety is given, together with a clear statement of the condition of the tissues with which polypi are generally associated. But no one would gather, from his chapter on these growths, any adequate notion of the obstinacy with which they yield to treatment, or of their tendency to return, when they have once been taken out, or in any way destroyed. Triquet is more explicit on this point. He states that in order to destroy a polypus, so as to prevent its return, it is necessary to continue an appropriate treatment for many months, and in one case he was obliged to persevere for two years.[1] Such is our own experience. Sometimes they are readily and radically cured. More frequently, whether they are destroyed by potassa cum calce, or removed by the forceps, they obstinately persist in returning. Mr. Toynbee advances no such notion. On the contrary, the inference from his history of them is that they are readily amenable to treatment.

Mr. Wilde, in his Aural Surgery, describes an affection of the ear, which he denominates exanthematous otitis. He invites the attention of practitioners to the condition of the ear, during and after scarlet fever and measles, and deprecates the neglect of the application of remedies "for a disease which is, even in the unhealthy condition in which the patient usually is at the moment, amenable to treatment"[2] M. Triquet, in the work just cited, devotes an important section to the discussion of the otitis which develops itself during the course of grave fevers, such as variola, scarlatina, typhoid fever.[3] That disease of the ear of some sort is apt to occur as one of the attendants, or as one of the sequelæ of the exanthemata is notorious, and that its results are frequently injurious to the auditory apparatus is equally well known. Mr. Toynbee alludes to this matter, but he dismisses it with a degree of brevity that amounts to neglect. No directions whatever are given for any prophylactic or other management of the ear, at the time when it is attacked by an exanthematous disease. This omission is the more to be regretted, because the assistance of medical

[1] Maladies de l'Oreille, p. 365.
[2] Aural Surgery, p. 339, etc.
[3] Maladies de l'Oreille, p. 224, etc.

art can be most efficiently and successfully invoked, when the ear is first attacked, and because general practitioners are apt to overlook the condition of the ear altogether at such times, their attention being engrossed by the constitutional affection. We regard this omission as a most serious defect in our author's work.

A large portion of the tenth chapter is devoted to an account of the discovery, use and mode of application of the artificial membrana tympani. This is evidently a pet matter with Mr. Toynbee. It is probably well known to our readers, that the artificial membrane consists of a portion of vulcanized India-rubber, cut so as to fit nicely to the inner extremity of the meatus, and intended to render the tympanum an air-tight cavity, by covering the perforation which disease has produced. The results of this application are stated to be "more satisfactory than there was reason to anticipate." No unfavourable cases of its application are presented. The inference from Mr. Toynbee's language, with regard to his discovery, is that it is useful in nearly every case of perforation, and that it improves the hearing in a remarkable degree. We are sorry to say that our observation does not bear out Mr. Toynbee's statements; and we think that whoever applies an artificial membrane, in exact accordance with his directions, will be disappointed, both with regard to the degree of success and the number of cases in which it is applicable, if he founds his expectations upon the assertions of its discoverer. We do not say that an artificial membrane is never of use, that it is valueless. We have often applied it, and have often found a considerable benefit following its application, but there are many cases of perforation, in which it is of no use whatever; and many others, in which the advantage, obtained by wearing it is scarcely a compensation for the trouble of daily introducing it into the meatus. These cases are ignored in the work before us. An unfounded expectation is raised with regard to the value of the application.

We think, moreover, that in general, sufficient stress is not laid upon the chronic character of certain affections of the ear, as well as on the incurable character of others. The inference from Mr. Toynbee's description of aural diseases, and the treatment he proposes for them, is almost inevitable, that, with the exception of some affections, which lead to disease of the cerebrum or cerebellum, and some others which reach into the internal ear, most derangements of the external meatus, of the membrana tympani, of the cavity of the tympanum and of the Eustachian tube, are not only susceptible of relief, but of a speedy relief. Certainly this cannot be affirmed of diseases of the ear in this country. Possibly the climate of old England and the skill of its aurists, make a difference in favour of our trans-atlantic brethren, which, however, must be confined to England. On the continent no such immunity exists.

We are glad to believe that the removal of tonsils for the relief of deafness is not practised as much as formerly. Still we are inclined to think that it is too often done, and therefore we rejoice to find Mr. Toynbee expressing himself emphatically against the operation, as a means of liberating or freeing the Eustachian tube. He says: "On the supposition that the tonsil, when enlarged, pressed against and closed the faucial orifice of the Eustachian tube, the operation for excision, or partial excision of the tonsils has long been practised for the relief of deafness. Although, as already shown, the tonsil, however hypertrophied, cannot cause occlusion of the Eustachian tube, still the removal of a portion, in cases where it is *much enlarged*, is sometimes of service by diminishing the congestion of

the mucous membrane at the orifice of the tube; and it perhaps also operates beneficially by allowing the muscles of the tube to act more freely. This operation is, however, very rarely required; and the best rule to follow is, never to excise a portion of the tonsil which appears to have important functions, independent of the fauces, unless it evidently interferes with the general health of the patient, or unless the obstruction of the Eustachian tube resists the other measures already indicated."—pp. 228–9. This is sound doctrine.

There is no part of aural surgery of which we have had less knowledge; none, of which the treatment has been more unsatisfactory or empirical than of that which has generally been called nervous deafness. Various theories have been advanced by which to explain its phenomena, and an equal variety of measures proposed for its relief, none of which were based on any accurate knowledge of the condition of the parts; and none of which have been followed by any decided and permanent benefit. Mr. Toynbee's investigations have done a great deal towards rendering our knowledge more exact on this point. His dissections have revealed to us a variety of morbid changes in the ears of persons who died while afflicted with what was called nervous deafness; and they have demonstrated the fact that organic lesions often accompany it. By a large series of cases, he has shown that alterations in the tissues of the cavity of the tympanum or of the ossicula, may induce impaired hearing, when the internal ear is free from disease. And he has also shown that the internal ear is susceptible of appreciable lesions, which impair or destroy its functions; and that, sometimes, the nerve tissues themselves become diseased. In certain other cases, he found no morbid changes whatever, by which to account for deafness. The importance of these and similar observations cannot be exaggerated. They render our knowledge exact, where it was vague; and lead to a treatment, or an abstinence from treatment, where all was unsatisfactory and empirical. The record of the investigations referred to, and the chapters in which the so-called nervous deafness is discussed, are among the most valuable portions of the work. No idle theories are set forth, or novel and useless modes of treatment proposed. And if the author has pointed out no means by which most of the affections of the internal ear can be relieved, he has accomplished the next most important thing, viz., to show why they cannot be relieved—to indicate the lesions which cause them, and which, in the present state of medical art, are incurable.

In conclusion, let us express our high estimate of Mr. Toynbee's book. It is one which the student of diseases of the ear cannot afford to be without. If, in some parts, we have found it imperfect, its merits largely overbalance its deficiencies. It lays a foundation for aural surgery where its only just foundation can be laid, in a nice, exact, and honest study of the healthy and morbid states of the ear. It is concerned not with theories, but with facts. If its history of diseases is not as complete as we could wish, and its therapeutics not beyond criticism, it contains that sort of knowledge which the scalpel and microscope can alone reveal, and without which no history is of much avail, and no rational therapeutics possible. Whoever is thus occupied with laying the foundations of a science wisely and deep, and broad in the only way in which they can be laid, can afford to build the superstructure somewhat carelessly, leaving the niceties of building to other hands. We commend the book heartily to every student of diseases of the ear. E. H. C.

BIBLIOGRAPHICAL NOTICES.

Art. XVIII. *Reports of American Institutions for the Insane.*

1. *Of the New York State Asylum, for* 1859.
2. *Of the Bloomingdale Asylum, for* 1859.
3. *Of the New York City Asylum, for* 1859.
4. *Of the New Jersey State Hospital, for* 1859.
5. *Of the United States Government Hospital, for the fiscal year* 1858–9.
6. *Of the Kentucky Eastern Asylum, for the two fiscal years* 1857–8 *and* 1858–9.
7. *Of the Kentucky Western Asylum, for the two fiscal years* 1857–8 *and* 1858–9.

1. From the report of the *New York State Asylum*, at Utica, it appears that the daily average number of patients at that institution, for the fiscal year terminating with the 30th of November, 1859, was 509, which is 36 greater than in any former year. "We have now," says Dr. Gray, "reached the fullest capacity of the buildings, and cannot expect, nor would it be wise, to extend the arrangements for more than the present number."

	Men.	Women.	Total.
Patients at the beginning of the year	260	242	502
Admitted in course of the year	170	142	312
Whole number	430	384	814
Discharged, including deaths	156	139	295
Remaining at the end of the year	274	245	519
Of those discharged, there were cured	72	42	114
Not insane	3		3
Died	21	14	35

Causes of Death.—Exhaustion from mental disease, 9; general paralysis, 5; phthisis pulmonalis, 3; epilepsy, 2; dropsy, 2; abscess, 2; dysentery, 2; old age, general debility, pneumonia, injuries of head, measles, inflammation of hand and arm, gangrene of lungs, paralysis, typhoid fever, and cancer, 1 each.

In one of the cases which proved fatal from phthisis, "hereditary predisposition to insanity coexisted with the tubercular diathesis. The mental disease, while excited by the pulmonary affection, reacted with controlling effect upon the latter, arresting its progress, and undoubtedly prolonging the patient's life beyond the point which it would have attained had the pulmonary trouble alone existed."

It is generally supposed that the *paralysie générale* of the French is almost invariably the consequence of luxurious or intemperate habits. For this reason we introduce the remarks upon the three cases in men which proved fatal in the course of the year: "In two of these, the natural course of the disease was interrupted by epileptiform convulsions. In one case, maniacal excitement followed sudden fright, general paralysis supervened, and an epileptiform seizure, six months afterwards, terminated fatally. In the other instance, the insanity was produced by loss of property, and resulted similarly at the end of two years. Both were characterized by maniacal excitement. The history of the third case failed to indicate the cause of the disease. Its duration was two years, and during the latter the patient was in this institution, in a condition of dementia. Before his death he lost, almost entirely, all muscular and co-ordinating power, and during the few last days of his life, the ability to swallow. The day

previous to death, consciousness seemed partially restored, and he appeared to appreciate his situation. All these patients had been temperate and correct in their lives."

Two women died of general paralysis. "In both, the mental disorder had existed about one and a half year, though the bodily health, in each, had previously been greatly impaired. Both patients had suffered extreme and long-continued abuse from drunken husbands."

"Of the 312 patients admitted, 31 were received for the second, 11 for the third, 4 for the fourth, and 2 for the fifth time."

The following pertinent remarks relative to periodic and paroxysmal insanity contain some useful suggestions in regard to prophylactic measures, which are adapted to all persons having a predisposition to mental disorder, or who, from whatever cause, are threatened with it.

"With increasing age and more frequent attacks, periodic mania is apt to become persistent, and the paroxysmal form of disease, which is a state of mild though permanent impairment not incapacitating the subject for most of the ordinary affairs of life, and characterized by irregular periods of excitement, is likely to degenerate into decided dementia. It is all important that such cases should, in their better states of health at home, avoid scenes calculated to produce unusual exhilaration of spirits, and should refrain from nursing the sick, and from labours and exposures tending to lower the tone of health. Yet such advice, on their leaving the asylum, is heeded but for a short time, as the pains and terrors of insanity, like those of other diseases, are obliterated from the memory by the enjoyment of returning health, and the pleasures and duties of home. Many persons, by a little care and sacrifice, by retiring early and thus securing a more than ordinary amount of sleep; by absolute rest after any unusual labour; by avoiding protracted evening meetings of any kind, religious, social, or political, and by cultivating a quiet and equable temper, might be spared returns of disease, and ultimately that permanently disordered state of brain which, when reached, necessarily makes its subjects invalids, as all organic impairment must, and not only takes them from spheres of usefulness, but too frequently so transforms them that the normal relations and duties of life minister to their discomfort and unhappiness rather than their enjoyment."

The Association of Medical Superintendents of American Institutions for the Insane, have unanimously adopted a series of propositions in regard to the construction of hospitals for the treatment of mental disorders. Among those propositions is the following: "The highest number (of patients) that can with propriety be treated in one building is two hundred and fifty, while two hundred is a preferable maximum." As has just been shown, the number at the Utica Asylum, at the close of the last official year, was five hundred and nineteen. But the establishment at Utica was erected not only before those propositions were agreed upon, but before the formation of the association mentioned. In the subjoined extract, Dr. Gray touches upon one of the arguments which should be primarily considered in an attempted estimate of the comparative merits of hospitals differing in extent.

"Among the few unqualified advantages of a very large institution, is the necessity for organizing and keeping up all the ordinary trades and occupations. Under the care of experienced workmen, the patient may thus occupy himself in his accustomed manner, during a period of his convalescence, when unwonted labour would be distasteful, or call for so much mental effort as rather to injure than benefit him. The extensive farm and garden, besides giving ample employment to the farming class, also require a large amount of unskilled labor, and furnish an agreeable diversity of occupation for all."

When we consider the universally acknowledged utility of manual occupation in the curative treatment of insanity, this ability to carry on a variety of arts becomes a fact of no trivial importance, and it is not impossible that time will show that too little regard has been paid to it.

Institutions for the insane, like most other things, have their individual characteristics. Lectures are the *forte* of the Pennsylvania Hospital for the Insane, theatrical representations, of the Asylum at Utica. "Some years ago," says the report before us, "a platform was erected at the end of one of our convales-

cent wards, and almost entirely by the labour and talent of the patients, a fine proscenium was placed upon it, stage machinery and properties adapted to it, scenery painted, and all the other necessaries for dramatic representations prepared. Each season a company is made up from the attendants and patients, and performances given with much success. This is now looked forward to with great interest by all. Much credit is due to several attendants and employees, who have taken the principal parts in the performances, with no inconsiderable labour and pains. During the past winter season, upwards of thirty entertainments were given. The stage was also occupied, at various times, by young ladies and gentlemen from the city, in private theatricals, and by several troupes of minstrels, vocalists, &c. The plays selected were mostly short and simple comedies, with which were given music, vocal and instrumental, tableaux, readings, and recitations."

Patients admitted from January 16, 1843, to December 1, 1859	5,828
Discharged recovered	2,340
Not insane	42
Died	671

2. Short reports are, of late years, one of the characteristics of the *Bloomingdale Asylum for the Insane*. The one now under notice consists of twenty-two lines, in pretty large type, and two tables of statistics.

	Men.	Women.	Total.
Patients in the asylum, January 1, 1859	63	82	145
Admitted in the course of the year	79	59	138
Whole number	142	141	283
Discharged, including deaths	74	57	131
Remaining December 31, 1859	68	84	152
Of those discharged, there were cured	30	25	55
Died	9	9	18

Twelve patients recorded as "improved" when they left the asylum, subsequently recovered at home.

Causes of Death.—Exhaustion from maniacal excitement, 7; apoplexy, 5; chronic disease of the brain, attended by partial paralysis, 2; general paralysis, pulmonary consumption, and pneumonia, 1 each.

The daily average number of patients for the year was 152, which is larger than heretofore.

3. The general operations of the *New York City Lunatic Asylum*, for the year 1859, are exhibited in the following schedule:—

	Men.	Women.	Total.
Patients at the beginning of the year	269	386	655
Admitted in course of the year	166	223	389
Whole number	435	609	1044
Discharged, including deaths	148	185	333
Remaining at the end of the year	287	424	711
Of those discharged, there were cured			148
Died	41	45	86

Causes of Death.—Consumption, 26; *paralysie générale*, 11; epilepsy, 7; congestion of brain, 7; old age, 6; typhomania, 6; apoplexy, 3; chronic diarrhœa, 2; pneumonia, 2; exhaustion from mania, 2; erysipelas, fatty degeneration of the heart, submersion, tubercle of the brain, uræmia, diarrhœa, dysentery, paralysis, gangrene of the lungs, anæmia, disease of the heart, œdema of the brain, debility, and hydrocephalus, 1 each.

The disease of two, reported among the recovered, was mania à potu.

"Of those admitted within the year, sixteen had attempted suicide, one was under indictment for murder, and one for forgery, and one was detained as a witness. * * * Twenty per cent. of males and sixteen per cent. of females were readmitted, that is, had been discharged from the asylum some year previous to 1859."

Of the 389 patients admitted, only 65 were born in the State of New York; 20 were natives of other States of the Union, and 304 were foreigners.

"Amongst our patients," remarks Dr. Ranney, "poverty, with its attendant evils, is the most common cause of insanity. Want of wholesome nourishment, the breathing of an impure atmosphere, exposure to the inclemencies of the weather, the perplexities in obtaining a livelihood, all tend to favour the development of disease. The tendency is increased when vice is connected with poverty, which, unfortunately, is too often the case. * * * * From the middle classes of society, our number is much smaller. In the majority of these cases, all their energies had been devoted to business, with the purpose of accumulating wealth in a short time. * * * Intellect meets intellect in competition, and if failure follow, disappointment acts as a strongly depressing cause on the already overtaxed mind."

The American Institute, at the time of its last exhibition, "awarded a diploma to the inmates of the asylum for specimens of embroidery and silk quilt."

Military drills and enthusiastic observance of holidays are among the characteristics of the New York City Lunatic Asylum. The past year has shown no falling off in these respects.

The number of patients at this institution has become so large that the Board of Governors have determined to extend the accommodations by the erection of another building.

4. The report for 1859 of the *New Jersey State Lunatic Asylum*, contains the following statistics:—

	Men.	Women.	Total.
Patients at the beginning of the year . .	148	145	293
Admitted in course of the year	85	101	186
Whole number	233	246	479
Discharged, including deaths	92	81	173
Remaining at the end of the year . . .	141	165	306
Of those discharged, there were cured . .	44	32	76
Died	17	9	26
Admitted from May 15, 1848, to Dec. 31, 1859 .	745	818	1563
Discharged recovered	292	313	605
Not insane	1	0	1
Died	108	98	206

Causes of Death in 1859.—Exhaustion from chronic mental disorder, 13; exhaustion from acute mania, 4; epilepsy, 3; consumption, 2; apoplexy, congestion of brain, paralysis, and congestion of the lungs, 1 each.

The whole number of patients in the course of the year was larger by fifty-three than in any preceding year.

"Though the institution has been greatly overcrowded by inmates, yet the last may be fairly regarded as one of the most quietly prosperous years that has passed since its opening for the admission of patients. * * * A large proportion of the deaths have occurred in cases exhausted by such severe or long-continued bodily and mental disorder as to make death a welcome friend to relieve them from continued suffering."

The report is mostly devoted to a description of the apparatus for a mechanical ventilation of the house, which has been introduced in the course of the past year. The fan, which is wholly of iron, is fifteen feet in diameter, and is furnished with eight wings or wind blades.

5. The buildings of the *Government Hospital for the Insane*, are pretty rapidly progressing towards completion. At the date of the report before us, it was expected that the centre and the three sections of wings, which were begun in the autumn of 1856, would be finished before the commencement of the now current year. The foundations of the four eastern sections of the eastern wing were begun in April, 1859. The superstructure had been raised to the foot of the second story, and it was intended that the whole should be under roof by the 1st of January, 1860.

"The furniture of the centre and new wards is being, for the most part, manufactured upon the premises, and, to a considerable extent, from various hard woods grown upon the hospital grounds, as was contemplated when the appropriation for the purpose was asked. Every exertion is being made to adapt the furnishing and fitting up, as well as the plan and construction of the house, to the various and peculiar habits of its deeply afflicted inmates, and to render all its apartments tasteful, comfortable and home-like.

"The ventilation of the hospital is by a fan twelve feet in diameter, and having eight blades, each five feet long by three wide. It is propelled by a twenty-four horse power engine, of the most approved construction."

	Men.	Women.	Total.
Patients in the hospital July 1st, 1858	65	52	117
Admitted in the course of the year	47	18	65
Whole number	112	70	182
Discharged, including deaths	28	16	44
Remaining in the hospital June 30, 1859	84	54	138
Of those discharged, there were cured	16	4	20
Died	6	4	10

Of the 112 men who were patients in the course of the year, 23 were from the army, 20 from the navy, and 69 from civil life.

Causes of Death.—"Chronic, organic, and functional degeneration of the brain, irregular in character and extent, 5; the same, with chronic diarrhœa, 2; the same, with phthisis, 1; the same, with paralysis, 1; the same, with dysentery, 1."

The average duration of insanity, in the cases terminating fatally, was 5.4 years.

Of the 257 persons treated since the Hospital was opened, 166 were born in the United States, 82 were foreigners, and the nativity of 9 was unknown.

Of the 138 in the Hospital at the close of the year, 10 were independent or pay patients, and 128 were supported by the Federal Government. Thirty of the latter were from the army and the navy, and 98 were indigents, belonging to the District of Columbia.

Dr. Nichols is devoting the best years of a vigorous and energetic life to the construction and management of this Hospital, the monument of a nation's philanthropy and benevolence; and we perceive with pleasure that his artistic skill and administrative talent are recognized by the general government, as is manifest from the following extract from the last report of the Secretary of the Interior:—

"When all the buildings shall have been erected, the grounds inclosed, and the appointments completed, the institution will be a model of its kind, and, with a continuance of the successful management it has heretofore received, will be an honor to the government, and an inestimable blessing to that unfortunate class for whose benefit it was designed."

6. The official year of the *Kentucky Eastern Lunatic Asylum* closes on the 30th of September. Although the general report of its officers is published but once in two years, that of the physician is written annually, and two are printed together.

	Men.	Women.	Total.
Patients in the Asylum, October 1st, 1857	129	99	228
Admitted in course of the first year	30	27	57
Admitted in course of the second year	32	13	45
Whole number in the two years	191	139	330
Discharged and died in the first year	32	27	59
Discharged and died in the second year	29	14	43
Remaining in the Asylum, Sept. 30, 1859	130	98	228
Of the discharged, there were cured, first year	12	11	23
Of the discharged, there were cured, second year	13	6	19
Not insane, second year	1	0	1
Died, first year	9	11	20
Died, second year	4	5	9

Causes of Death, first year.—Acute mania, 1; *paralysie générale*, 2; exhaustion, 5; epilepsy, 3; phthisis, 6; chronic gastro-enteritis, 2; hemiplegia, 1. *Second year.*—Exhaustion, 4; phthisis, 3; typhoid fever, 1; marasmus, 1.

"No one," says Dr. Chipley, "can observe the cases brought here without the conviction that a large number are sent to the asylum, not for medical treatment, but for the care required by old, feeble, and helpless imbeciles. This institution is thus rapidly becoming a mere asylum for incurables." Of the 57 cases admitted in the first year, the disease of 43 had existed more than one year.

An appropriation for improvements had been expended prior to the second year, and in the report for the latter term reference is made to the "greatly lessened mortality as the highest evidence of the sanitary results of those improvements. The average annual mortality for the last sixteen years was 10.44 per cent., or, excluding three years, in which epidemic cholera proved very fatal, it was 7.25 per cent., while the last twelve months gave a mortality of only 3.32 per cent. The substitution of pure for impure water, the comfortable heating of the entire building, and the removal of the common sewer from beneath the floor of the basement to the outside of the building, could not fail to add to the comfort, improve the health, and diminish the mortality of the inmates of the institution."

In reference to the patients discharged as cured, the author of the report says: "One had been in this institution over five years, and, up to the beginning of the present year, I never saw a case apparently more hopeless. He was discharged some months since, and remains quite well."

Upon the subject of intercourse between patients and their friends, Dr. Chipley writes as follows:—

"I have known a single short interview with a relative to cause a relapse when the patient was rapidly recovering up to the time. It is known that very few insane persons recover who are detained at home, and it is remarked that patients from distant points are restored much more rapidly and certainly than those who are still near familiar scenes. The principle of association is strong in the human mind, and the bare sight of a relative may revive and strengthen the morbid chain of thought, when, by absence and proper treatment, it was about to be broken up forever. I do but express the opinion of all men of experience when I say that the rule which forbids such intercourse should be enforced more stringently, rather than relaxed in any degree. While access to those who will not be injured by intercourse with their friends should not be denied, I feel that I would be derelict in duty if I did not choose to bear the reproaches of injudicious friends rather than to risk inflicting irreparable injury on my patients."

Although he admits that insanity is increasing in a greater ratio than the total population, the doctor alleges, among others, the following argument to show that the increase is more apparent than real:—

"Another cause for this apparent increase is due to the augmented longevity of the insane who enjoy the comforts of modern asylums. This is declared to be the fact elsewhere, and, I am happy to say, that statistics show it to be true in this institution. Thirty-five years ago, the average age of all who died here, for a period of four years, was less than thirty-seven years, while for the last four years the average was over forty-two years. Here is an absolute gain of five years in the duration of life, and it is obvious that an effect of it is to swell the number of living lunatics."

The subjoined cases are interesting from their relation to medical jurisprudence.

"Several persons have been committed to the asylum accused of crimes supposed to have been perpetrated under the influence of insanity. Of this number was one reported in the foregoing table as 'not insane.' An inquest was held, the jury found the prisoner 'of unsound mind,' and the court very properly ordered him to be conveyed to the asylum. A single day's observation convinced me that he was malingering, and, after detaining him a sufficient length of time to confirm the opinion beyond all doubt, the prisoner was re-delivered to the sheriff of the county where the felony is alleged to have been committed.

He is now in jail, awaiting his trial at the next term of the court. As one jury found this individual "of unsound mind," it is highly probable that, if he had been put upon trial for the crime charged against him, he would have been acquitted on the plea of insanity, and thus he would have escaped the just penalty of the law.

"Since this report was made up, another person, acquitted of the crime of murder on the plea of insanity, has been committed to the asylum, and discharged therefrom on a writ of *habeas corpus*, after a detention here of only one week. I have reason to believe that this person never was of unsound mind, and that he escaped the rendition of a verdict on the merits of the charge, only by the vicious and imperfect method of investigating this plea. A fair and reasonable opportunity for examination by experts would probably have given a different result."

After relating these cases, Dr. Chipley proceeds in a discussion of subjects connected with the medico-legal relations of insanity, and concludes by an apparent approval of the law in Maine, by which a person accused of crime, and in whose favour the plea of insanity is raised, may be placed, by order of court, under the care of the superintendent of the hospital for the insane, to be detained and observed until further order of the court. But the doctor would have "two other intelligent persons associated with the superintendent in this commission, and their report should be made in writing, setting forth in full, for the consideration of the court and the jury, the reason why they believe the accused is or is not insane."

It is recommended in the report that a distinct ward in one of the State asylums be appropriated to the insane criminals of Kentucky; and the establishment of an institution for idiots is strongly urged.

7. The report from the *Kentucky Western Lunatic Asylum* is biennial, but the statistics of the two years are, in part, reported separately.

	Men.	Women.	Total.
Patients in the asylum, December 1, 1857 . .	57	45	102
Admitted in course of the first year . . .	69	37	106
" " second year . .	74	55	129
Whole number in course of the two years . .	200	137	337
Discharged and died in the first year . . .	35	14	49
" " second year . .	58	26	84
Remaining in the asylum, December 1, 1859 .	107	97	204
Discharged, cured, first year	21	6	27
" " second year	27	11	38
Died, first year	10	6	16
" second year	25	15	40

The large mortality of the last year may be accounted for by the following gloomy account which Dr. Montgomery, who, if we mistake not, became connected with the asylum about two years ago, introduces into his report:—

"When the undersigned entered upon official labours, more than twenty-five per cent. of the hundred and twenty patients in the house presented that most hopeless state of disease, epilepsy and chronic insanity combined. Fully sixty per cent. of the remainder had long since lapsed into the chronic stage of their maladies, and, of course, presented a gloomy prospect of any gratifying degree of improvement; while among the comparatively recent, and even the few acute cases, a majority seemed unpromising. All had seriously suffered during the previous winter, and many, particularly the epileptics, exhibited evidences of the evil effects of cold, damp atmosphere upon weak and diseased bodies. This exposure and suffering resulted from unavoidable necessity to confine most of the patients, during the long and inclement nights of winter, in rooms destitute of any artificial warming. But few of such patients—and they are of a class who bear the influence of cold with comparative impunity—could, with safety to themselves and the house, be allowed stoves or open fires in their lodging rooms. And the irregular and often deficient supply of water for steam and other pur-

poses, added to the inefficiency of the steam apparatus, broken and deranged condition of the steam and water pipes, as well as water tanks, rendered it not only impracticable, but utterly impossible to warm the halls or lodging apartments of the sufferers.

"For the rigours of the winter of 1858–9, the house was as ill prepared as for those of the preceding. The consequences were, much suffering by the patients, several deaths, and most of the survivors weakened, and more or less seriously worsted, before the close of cold weather. To add, as it were, to existing difficulties, as the genial warmth of spring came, epidemic dysentery invaded the feeble household. Before the close of July, about eighty cases of this disease had occurred, and ten of them terminated fatally. Several of the stoutest attendants, and other helps, suffered also, but were promptly relieved. In consequence of drought, the cistern water failed about this time—a serious misfortune even alone; now a great and perplexing evil. Early in August, miasmal bilious fever, of a violent grade, appeared in the country, and was soon in the asylum. Dysentery seemed to run into "the fever," as it has been often observed to do in general practice. Here, as in the neighbourhood, the force of this "bilious" disturbance being primarily upon, or borne by, the brain and spinal cord and mucous coat of the bowels, the fever appeared to be of the apoplectic and dysenteric character. And it is a remarkable fact, that scarcely an individual who had convalesced, or who was recovering from a recent attack of dysentery, escaped an attack of this fever. And, of course, many of such patients soon succumbed to its fatal force."

Causes of Death.—Epilepsy and paralysis, 9; paralysis, 8; apoplexy, 3; epilepsy, 4; consumption, 8; miasmal fever, 7; dysentery, 10; maniacal exhaustion, 2; gangrene of legs, 2; inflammation of stomach, lumbar abscess, and cancer of the uterus, 1 each.

"Epilepsy, of many years' standing, was complicated with miasmal fever and dysentery in 5 of the 17 who died of these acute bilious affections; as the latter in turn seemed in many instances to give fatal force to all of the other causes of death above specified. Ulceration of the bowels existed in almost all who died—from what cause soever—during the prevalence of the fever and dysentery."

Of the 337 patients who were in the asylum in the course of the two years, 50 were epileptics, and 29 congenital idiots. Eight cases enter into both of these classes, epilepsy and idiocy being associated in them.

We notice a little discrepancy in regard to the mortality among the patients. While, in one place, as has been quoted above, some special physical disease is mentioned as "the cause of death" of every patient, it is stated, in another, that one "died by homicide, committed by a stout maniac, in a sudden and violent fit of excitement," and "another, a female, committed suicide during the second night after admission, by tightly tying a cord around the neck."

Although Dr. Montgomery finds some cause for discouragement in the new field of labour which he has entered, we trust that he will not forget the potency of patient and persistent effort. P. E.

ART. XIX.—*A Familiar Forensic View of Man and Law.* By ROBERT B. WARDEN. Columbus: Follett, Foster & Company, 1860, 8vo. pp. 550.

THIS work is a lawyer's view of man and law. It is professedly an attempt to shed the light of other sciences on legal learning, and to shed the light of legal science on other learning; or, in other words, to bring jurisprudence into the circle of the other sciences. It claims to be merely the introduction to an unpublished volume which is to treat of polity and jurisprudence chiefly, of the development of art and law, of jural forms and other objects of interest, in a forensic view of man and law.

The stand-point of this view is not, however, purely forensic. The author avowedly preferring the comprehensive to the narrow, attempts the study of anthropology in its scientific and metaphysical, as well as its legal aspects. In

the initial chapters of his work, he speaks of the first appearance of man in nature and art, of the brotherhood involved in unity of origin, and of man in his legal character and zoological rank. In the second book, which constitutes by far the greater part of the volume, the forensic relations of physiology, pathology and etiology, are discussed at some length.

In the ethnological remarks embodied in chapters two, three, and four, Mr. Warden is particularly unhappy. He is very positive in his opinions concerning the origin and affiliation of the races of men, notwithstanding that the scientific data thus far collected, are far from being sufficient to warrant an authoritative conclusion upon these deeply important questions. He is "determined to respect the account of the appearance of man which Agassiz rejects." He tries a lance with Morton, talks confidently of the "arrogance of science," and thinks that "life forensic" has enabled him to judge "of the limits in which scientific theories deserve acceptance." In matters of science he opposes Blackstone and Moehler to Agassiz and all those who have chosen to depart from the received construction of Genesis. He thinks that "the narrative in Genesis must be regarded as asserting that all mankind are derived from a single pair, and that to construe away the meaning of the narrative is wholly to destroy the narrative in all its parts." He makes issue with Agassiz in relation to the adaptedness of different animals and plants to certain geographical regions, and because he cannot discover in what this supposed adaptedness consists, he concludes that we are not authorized to say that it exists at all. The thoughtful reader will be slow to accept the conclusions arrived at by such reasoning as this. As well might we say that light does not exist, because the most eminent physicists are not yet agreed whether this imponderable consists of material emanations or of ethereal undulations.

Our author, very justly, we think, finds in the "harmonious relation of the human mind and the human body" the proper basis of his forensic view of man. He seeks a reliable psychology suited to his purpose among the facts of physiology rather than those of the metaphysical philosopher.

"A physiology, distinctively forensic," he writes, "must embrace some views of life, which physiology, as part of medicine, does not include. As obviously, the forensic physiology cannot present minutely all that medical accounts and theories of life elaborate.

"How human life is reproduced in individuals, all physiology inquires. What regulations should be made with reference to the reproduction of life, forensic physiology adds to the questions asked in other physiologies. When life begins, all physiology attempts to ascertain. The duty of the government with reference to the protection of human life, may be examined with peculiar interest in a forensic physiology. How life may be destroyed—how it may be affected beneficially or otherwise—are questions with which the medical physiology must be especially familiar. They are questions also of great interest in a forensic physiology. How life may be supplied with liberty of action; what should be the limits of its freedom; how it may pursue its objects; how its powers may be used in legal service, in the national defence; and otherwise in public duty—what may work a forfeiture of life, or of the liberty so dear to it—these questions also might, perhaps, be treated as belonging to a distinctively forensic view of life."

Finding in physiology, therefore, the true basis upon which to erect a legal philosophy of man, Mr. Warden reproduces from the works of Carpenter, Draper, Morton, Wilson, Dunglison, and others, many well-known details concerning the structure of the eye and its connections, the minute anatomy of the nerves, the nature of nerve-force and mind-force, &c. He presents the reader also with a brief summary of what is known concerning perception, the varieties of cerebration, hallucination and illusions, the understanding and the will. In this manner he attempts to portray the characters of what he calls an ideal standard man and woman. He treats, finally, of life in its beginnings, and in its juvenile, adolescent, and senile periods; of idiocy and the varieties of madness, and of the facts of pathology and etiology in their relation to jurisprudence.

From these remarks it will be seen that the author of the work before us carries his readers over quite an extensive field. He seldom, however, plunges

with them below the surface. His work, though comprehensive, is certainly not profound. It is commendable more for the philosophical importance of the subject, and the great value of the method of investigation adopted, than for the thoroughness with which that investigation has been conducted. It is an exceedingly difficult undertaking to keep pace with the rapidly advancing physiology of the present day; still more difficult is it for any one to master the details of this science so thoroughly as to be able to apply them with success to the elucidation of the principles involved in a forensic survey of man. For such an application something more than the mere perusal of the standard, physiological text-books of the day is necessary. Years of laborious and patient research in the laboratory of the physiologist are imperatively required.

J. A. M.

ART. XX.—*De l'Hématocèle Rétro-utérine et des Epanchements Sanguins Non-enkystés de la Cavité Péritonéale du petit Bassin, considérés comme Accidens de la Menstruation.* Par le Docteur AUGUSTE VOISIN, Ancien Interne des Hôpitaux de Paris, Lauréat de la Faculté de Médecine et de la Société de Chirurgie, Membre de la Société Anatomique, de la Société Médicale d'Observation, de la Société de Médecine du Département de la Seine. Avec une planche. Paris: J. B. Baillière et Fils, 1860. Octavo, pp. 368.

Retro-uterine Hæmatocele and Non-encysted Effusions of Blood in the Peritoneal Cavity, considered as Accidents of Menstruation. By Dr. VOISIN. With a lithograph plate.

RETRO-UTERINE HÆMATOCELE is the name given by M. Nélaton to an affection, the pathology of which was first precisely pointed out by him about ten years ago. The character of the affection is indicated by the name; it is a bloody tumour behind the uterus.

With the exception of a few very short notices in some of the medical periodicals, a very imperfect, and indeed quite incorrect, account given by Dr. Gross in his *System of Surgery*, and three cases reported by ourself from the clinical lectures of M. Nélaton, we have never seen any reference made to this affection by an American writer. British writers, also, have said but very little in regard to it; by far the most complete account of all is given by Dr. West, in his *Diseases of Women* (Am. ed., Philadelphia, 1858, p. 333).

This affection, so lately recognized, is certainly not a common one; yet a knowledge of its existence and of its nature will show it not to be so very rare as might be supposed. We are satisfied ourself that a very considerable proportion of the reported cases of pelvic abscess so readily healed after opening, and of ovarian tumours cured by simple evacuation through the walls of the vagina, would be shown, by more careful and enlightened examination, to be cases of sanguineous cysts behind the uterus, or retro-uterine hæmatocele. The situation occupied by these sanguineous cysts, and the gravity and peculiar character of the diseases with which they may readily be confounded, show the importance of recognizing them.

This treatise of Dr. Voisin is one of those complete and finished monographs, in which the French, with their genius for methodical arrangement and careful research into minutiæ, so highly excel. It contains all that is known in regard to retro-uterine hæmatocele; its literary history; its pathology, and the different opinions held in regard to it; its causes; its symptoms, its diagnosis, and its treatment; and, moreover, the detailed history of thirty-six cases. Not only this, but its author, in addition to being thoroughly acquainted with his subject, is evidently highly qualified for the task of deciding between any discordant opinions that may have arisen in regard to various points connected with it. After carefully studying his treatise, we adopt, without hesitation, the opinions he holds with respect to the origin of the blood, and the anatomical seat of the tumour—the two most unsettled points in these cases of bloody tumours, encysted and not encysted, of the pelvis.

Retro-uterine hæmatocele is the result of hemorrhage into the fold of the peritoneum, behind the uterus, from the mucous membrane of the Fallopian tube, or of the uterus, or of the membrane of the Graafian vesicle. It always takes place at the time of the menstrual discharge, the determination of blood to the pelvic organs having been abnormally great. Non-encysted effusions of blood proceed from the same parts, the hemorrhage being so violent that the patient dies before the blood effused can become surrounded by a limiting membrane; and also from a ruptured sub-ovarian varix, when the hemorrhage is always so rapid that the patient dies (not one has lived more than twelve hours) before there is a possibility of any cyst being found. In ten of the cases of hæmatocele that came under his own notice, Dr. Voisin was able to obtain precise information respecting the direct cause of the affection. In all the ten the first symptoms coincided with the catamenial period. In seven sexual intercourse had taken place while the courses were on, and a commencing pain was produced during the venereal act. In the others, one had passed the whole night at a ball; another had scoured a floor; and another had washed clothes, exposed to severe cold. In two cases of non-encysted bloody effusions, in which an autopsy was made, the direct cause in one was evidently excess in coitus, and the other was caused by a kick.

As to the seat of the tumour, autopsy has always shown it to be situated in the peritoneal cavity; no proof has ever been given of the extra-peritoneal seat of retro-uterine hæmatocele. As regards the opinion, adopted by Dr. Gross, that the blood is poured out into the sub-peritoneal cellular substance of the neck of the uterus, it is only necessary to state that there is not a trace of cellular tissue, on the posterior surface of the uterus, between it and the peritoneum.

The symptoms of retro-uterine hæmatocele, at the beginning, are those of inflammation of the peritoneum; severe pain, increased by the least pressure, by the slightest motion, having its principal seat in the pelvic cavity, increasing at every menstrual period as long as the affection lasts. The pain is sometimes accompanied by a very fatiguing sensation of weight about the anus; then the patient or the physician detects the existence of a tumour, dull upon percussion, projecting above the pubis, and extending more or less towards the umbilicus. By the finger in the vagina, this tumour is felt pushing forwards the neck of the uterus against the posterior face of the symphysis pubis, flattening out the rectum behind, stretching tightly the walls of the vagina, and advancing forwards to about two inches from the orifice of the vulva. From interference with the bladder and the rectum, there is vesical tenesmus, and constipation.

The general symptoms are those of peritonitis; nausea, vomiting, chills, intense fever, small and rapid pulse, and hippocratic face. To these general phenomena must be added a rapid decoloration of the skin, which becomes of a dull white colour.

When left to itself, a retro-uterine hæmatocele generally disappears, by the absorption of the blood effused, in about four months. In some instances it has opened its way into the rectum, and in others—and of this we have witnessed an example—it has discharged itself into the vagina. In some few cases the encysting membrane has given way, and the tumour has opened into the general peritoneal cavity; and again—though this is very rare—the contents have become purulent, and demanded instant surgical intervention.

As to the proper treatment of this affection, we learn from this treatise that out of 27 cases treated medically, but 3 died; of 20 cases in which a puncture was practised, and the contents of the cyst evacuated, 5 died, and a large proportion of the others were in great danger with symptoms of putrid infection. It is only in those very rare cases where suppuration takes place in the tumour that the surgeon should interfere. Dr. West is decidedly too much inclined to practise the opening of these sanguineous cysts; a more extended experience will probably lead him to modify his teachings in regard to this.

We stated above that it was likely that a number of cases of retro-uterine hæmatocele were confounded with pelvic abscess, that kind, at least, which is situated behind the uterus. In both cases there is a post-uterine tumour, and very severe pelvic pains; in both, also, adhesions are formed between the intestines and the pelvic organs. But in post-uterine abscess the symptoms are not

often so closely connected with menstruation, and do not from the very first reach their highest degree of intensity; the tumour is not formed at the very beginning; the mass, hard at first, becomes afterwards soft and fluctuating, while generally it is the contrary in hæmatocele. Retro-uterine abscess is very often consecutive to a delivery or an abortion. Another affection also confounded with retro-uterine hæmatocele, but the differential diagnosis of which is far more easy, is an ovarian cyst occupying the retro-uterine space, and adherent to the broad ligaments, the uterus, and the intestines. The tumour here pushes the uterus forwards; it is felt by the touch above the pubis, and is the seat of evident fluctuation. But in such cases the patient is generally over forty years of age, while in hæmatocele she is almost always about thirty; the affection is developed without any serious morbid symptom, without any sign of acute peritonitis, and it tends to daily increase in size, without giving rise to any symptoms but those of compression and of interference with the functions of the alimentary canal.

The plate accompanying this work represents the appearances found in the pelvis in a case of retro-uterine hæmatocele, as examined after death; also three figures illustrating a case of cystic tumour of the ovary.

We most earnestly recommend the careful study of this monograph of Dr. Voisin to all engaged in medical practice, and particularly to those who are interested in the subject of abdominal tumours. It has been our object, in what has been said on the occasion of his work, rather to draw the attention of the profession in this country to the existence of the disease treated of therein, and to the importance of recognizing it, than to attempt anything like a critical or analytical notice of its contents. W. F. A.

ART. XXI.—*Stricture of the Urethra: its Complications and Effects. A Practical Treatise on the Nature and Treatment of those Affections.* By ROBERT WADE, F. R. C. S., Senior Surgeon to the Westminster General Dispensary; Fellow of the Royal Medical and Chirurgical Society; and late Lecturer on Pathological Anatomy. Fourth edition (with engravings), considerably enlarged. London, 1860. 8vo. pp. 354.

IN the preface to this treatise we are warned that it has no pretensions to either microscopical or historical distinction, and that the end and aim of the author have been to make it thoroughly practical. We are therefore, we suppose, called upon to excuse the absence of anything approaching to novelty or to remarkable interest in this good-sized volume, in the matter of the anatomy, physiology, pathology, or hygiene of the urethral canal; in other words, of everything not directly concerned in the treatment of stricture. In what we have to say about it, we shall therefore confine ourselves almost entirely to its practical teachings, or to the mode of treatment advocated therein. Since the author seems to disclaim any intention of affording any new information on other points, we scarcely feel at liberty to find fault with him for not having done so, though quite disposed to express dissatisfaction at the waste of time we have been compelled to submit to in the examination of so many pages devoted to the description of the varieties, symptoms, causes, and consequences of urethral stricture, without finding anything to repay us for our labour.

This absence of anything new is, to be sure, scarcely a matter for just disappointment, when we consider how much has been written on this subject, and the number of comprehensive treatises that have recently been published thereupon, particularly in England. But, on the other hand, this same consideration would lead us to expect some decided superiority in a treatise, of which a fourth edition had been demanded. This difficulty, however, we find satisfactorily solved by what is said of the second edition of the work in the *British and Foreign Medico-Chirurgical Review*, for April, 1850. Speaking of Mr. Wade, the reviewer says: "He has imposed upon the public, and has attempted to impose upon us, a book which he calls a second edition, but which is not by

any means truly a second edition. Struck with a difference, although a very slight one, in the colour of the paper of the two parts of this book, and a certain appearance of age which appertains to the first part, a suspicion flashed across our mind, which we have taken the trouble to verify by comparison of the first and second editions of this book. A second edition of any work implies that the former edition has been sold and disposed of, and that the public requires a fresh supply; which is in some sense a guarantee that the book is a good one, or at all events a popular one. What will our readers think when we tell them that this second edition of Wade on Stricture of the Urethra, is nothing more nor less than the old book, with the addition of ninety-eight pages of new printing, if not altogether of new matter, tacked on to the end of it? In fact, Mr. Wade's old performance, which has never sold, has been taken from the musty shelves which bore the precious burden, and, with the embellishment of a new title-page, a newly printed preface, and the addition we have before mentioned, has been issued to the world in a new binding as a second edition, greatly enlarged." After this disclosure, it is easy to understand what was before rather incomprehensible, a great demand for Mr. Wade's Treatise; and knowing now the demand to be little, and the supply great, we are in a position to estimate the relative value of the production.

In the portion of the book devoted to the treatment of stricture, as may be known from what has already been said of it, we do meet with novelties, or at least with peculiarities, calling for remark. As is well known, there are strong objections to the employment of caustics in the treatment of stricture. Their uncertainty, the swelling of the urethra and consequent retention of urine often following their application, and the fact that the tissue destroyed by them is replaced by a cicatrix which afterwards produces a new obstacle; these are some of the more important reasons why, at the present day, prudent surgeons seldom or never resort to their use. Let any one reflect for a moment at the difference in length possessed by the urethral canal, according to the degree of turgescence of the penis, or the greater or less degree of force with which the surgeon stretches the organ, when holding it for the introduction of his instrument, and he will see how impossible it is to make a small piece of caustic touch exactly a certain part of the canal. Again, if the opening at the stricture be very small, the swelling that must follow the action of the caustic may close the canal entirely, and retention of urine, with all its suffering and danger, is the consequence. These are the immediate difficulties and dangers of cauterization, to say nothing of hemorrhage, perineal abscess, false passages, the severe pain inflicted upon the patient, and its ultimate results, in respect to which experience has decided most unfavourably.

Mr. Wade, however, in his treatise, tells us that cauterization, in his hands, is never attended with these disagreeable consequences. The caustic he uses is the caustic potash; he applies it more freely than others have done, and in impassable and highly irritable strictures, and declares that "he can truly say that the application of the caustic potash to urethral stricture, in his hands, has never been attended with any results which have caused him the slightest anxiety." (p. 114.) This is a startling assertion.

"The marvellous," says an ancient surgical writer, "is the rock whereupon the learned and the ignorant make shipwreck; the former, determined to believe nothing blindly, deny all the facts they are unable to understand; the latter, wondering at everything, and unacquainted with the impossible, believe everything without discernment: led on either side by different prejudices, they fall into opposite extremes: a blind credulity embraces the coarsest errors, and an exaggerated distrust rejects resolutely many truths that ought at least to cause hesitation in minds free from prejudice."[1] To show how Mr. Wade's reported cases of success have been judged, we may state that Mr. Syme, at page 53 of his own work on stricture, declares that "on the whole it seems more reasonable to conclude that in the cases of alleged cure by caustic there was no real stricture in existence, than to suppose that so improbable, or rather impossible, an achievement had been accomplished." This declaration, coming as it does from

[1] Mémoires de l'Académie Royale de Chirurgie, tome iii. p. 32. Paris, 1764.

a surgeon, who, though greatly distinguished in his profession, is known to be a warm partisan of the treatment of stricture by incision, may be justly received with some distrust. Nevertheless, after carefully examining the chapter in Mr. Wade's book devoted to cauterization, and the numerous cases appended to it, endeavouring at the same time, as far as possible, to be uninfluenced by what we have read and ourselves witnessed of the action of caustics in the urethral canal, we have arrived at the same conclusion.

The caustic employed by Mr. Wade, as said before, is the potassa fusa. He uses it in old hard strictures, particularly such as are impermeable and of considerable extent; in highly irritable and very vascular strictures, which readily bleed upon slight pressure by the bougie; and in those strongly predisposed to spasm. It is applied by inserting a small piece newly broken, about the size of a pin's head to commence with, into a hole made in the point of a soft bougie, leaving it fairly exposed, so as to enable it to act upon the stricture. Covering it well with lard that there may be no fear of its acting before it reaches the stricture, it is introduced into the urethra, pressed gently against the stricture for a minute or two, if impermeable, and then withdrawn; if the stricture be permeable, the bougie is passed three or four times over its whole surface. The period at which it will be advisable to repeat the application of the potassa fusa depends upon its effects and the nature of the cases in which it is used. In many old chronic strictures, Mr. Wade states that he has used the potash advantageously every second or third day; and in some few instances, under peculiar circumstances, even oftener.

Used in this way we are told that the potassa fusa appears to exert its salutary effect by a process of inflammatory softening and dissolution of the thickened tissues forming the obstruction. Of this powerful solvent effect, as Mr. Wade styles it, of the potassa fusa there can be no doubt; but when pressed down in this way in the urethra, particularly against the anterior extremity of a hard, diseased mass, the orifice of which the finest bougie cannot penetrate, what is to limit this powerful solvent effect to the strictured canal alone? No wonder that perineal abscesses, false passages, and exhausting hemorrhages, from destruction of other parts than those for which it was intended, have again and again followed its use. Why they never do in Mr. Wade's hands, why he never has had results "that caused him the slightest anxiety," we are at a loss to understand, for the only peculiarity in his mode of using it, is the greater quantity of caustic employed, and its more frequent and general application. How it is that others have not been equally successful with himself in the treatment of stricture by caustic, Mr. Wade would explain by saying that to use it successfully often requires a considerable degree of confidence derived from experience, and then he asks, "Do we not constantly find in practice that a particular remedy proves more successful with one person than with another?" (p. 108.) Now, surely great confidence could only lead to greater boldness and freedom in the use of the caustic, which cannot explain this limitation of its solvent effect, and consequent absence of disastrous results, and we are thrown back upon this explanatory question, upon which we leave our readers to make their own comments.

The cases contained in the appendix to the chapter upon cauterization are forty-eight in number. They were all judged to be either impassable or highly irritable, often upon what appears to be very insufficient grounds, and immediately thereupon subjected to the potassa fusa. In reading them over one is irresistibly reminded of what he has read of the witch-trials of ancient days, where one unfortunate wretch after another is recorded as *convicta et combusta*.

W. F. A.

Art. XXII.—*Hæmorrhoids and Prolapsus of the Rectum: their Pathology and Treatment; with especial reference to the application of Nitric Acid.* By Henry Smith, F. R. C. S., Surgeon to the Westminster General Dispensary; formerly House-Surgeon to King's College Hospital. Second edition. London, 1860. 12mo. pp. 108.

If we are to judge from the number of works recently published upon diseases of the urethra and of the rectum, these diseases must be at the present time, either from choice or from necessity, a principal subject of attention with surgeons. In England particularly is this the case, and as a general rule, therefore, a publication upon these diseases contains very little that is new, if it possesses even any distinguishing peculiarity.

The main feature in the little work before us is the satisfactory account it gives of the treatment of hæmorrhoids and of prolapsus recti, by the application of nitric acid. Although Mr. Smith, in the preface, declares that he has taken the opportunity to consider, at some length, the pathology and general treatment of the diseases in question; yet we have found it to contain nothing calling for particular remark, on any other point than that of their local treatment by the acid just mentioned. On this point the information given is really very valuable, and we could have been in no-ways disappointed in the book had we not been led from the statement in the preface to look for something more. There is, it is true, a short account given of the pathology and general treatment of hæmorrhoids and of prolapsus recti, particularly of the former affection; but this account contains nothing but what we find in every work treating of diseases of the rectum. This is the more to be regretted, because there is an opportunity to say much that is new and important upon hæmorrhoidal affections, as well as upon all those in which the venous system is concerned. On affections of the veins, surgery is further in arrears than on almost any other subject.

The treatment of internal piles (of external, excision is agreed by all to be the best treatment) by the local application of nitric acid, although highly extolled by recent writers on surgery in England, has not been favourably spoken of in this country, at least so far as we have been able to know. Druitt,[1] who may be regarded as a reliable exponent of the most judicious surgical practice in England, says that "it is the most safe, speedy, and effective means" of affording relief in cases of internal piles; that "it is difficult to exaggerate the benefits of this plan of treatment." In this country Dr. Gross writes that he "has occasionally made use of nitric acid for destroying internal piles; but with results not sufficiently gratifying to induce him to recommend its adoption as a means of radical cure, being satisfied that, while it is more difficult of application and productive of more pain and inflammation than the ligature, it is much less certain in its effects and more liable to be followed by relapse."

When, in a matter of experience, such a difference of opinion exists in regard to the effect of a certain remedial agent, it is probably owing to some difference in the method of applying the agent, or to some difference in the nature of the cases. How Dr. Gross has thus unsatisfactorily attempted to apply the nitric acid, or in what cases, he does not state; but it may be, since its effects are so highly praised by others, that it was not applied properly, nor in suitable cases. As Mr. Smith is a prudent and conscientious surgeon, in whose statements perfect reliance may be placed, we shall, therefore, take the pains to describe his mode of using the caustic, and to distinguish the particular cases in which he found it beneficial. Upon these points, moreover, he is very clear and definite.

The local use of nitric acid, according to Mr. Smith, is eminently suited to cases where the hæmorrhoidal tumours are small or moderate in size, and where they are evidently composed of morbid texture, in which the small arteries rather than the veins are interested. About these particular kind of cases, he adds, there is no doubt in the mind of any surgeon who has seen the nitric acid applied

[1] System of Modern Surgery, Amer. edit., from the 8th English. Phila., 1860.

in a proper manner. Again, in cases where there is not so much any decided hæmorrhoidal tumour, but where there is a generally congested and relaxed condition of the mucous membrane of the rectum, attended with bleeding to a greater or less extent, the nitric acid acts very beneficially. To apply this agent to those cases where the tumours are large and indurated, and have a deep blue colour, would be, he declares, perfectly useless, and only bring discredit upon the nitric acid as a means of cure in other kinds of hæmorrhoidal disease. For cases such as these last mentioned, he states that the ligature is necessary; as also in those instances where, though of a bright-red colour, the dependent portions have become very much thickened and indurated; and in those where a considerable amount of prolapsus attends upon the original affection, and an alarming amount of hemorrhage proceeds from one distinct tumour.

In applying the acid, the bowels having been well evacuated some hours previously, the hæmorrhoidal disease is brought into view by making the patient sit over hot water for a few minutes, or by means of an enema of water thrown into the rectum, the surgeon then lightly touches the diseased surface, previously wiped with lint, with the extremity of a small, flat piece of wood dipped into nitric acid, the strongest and purest that can be obtained. The part touched, and the neighbouring mucous membrane, are then well smeared with oil, and the whole of the exposed part is returned within the anal orifice. When it is difficult to expose the parts, a silvered glass speculum may be used. The pain following this operation is very slight, there is merely a slight smarting or warmth, which goes off very speedily; it is not necessary to confine the patient to bed afterwards; and in no instance has anything like a dangerous result ever been witnessed. After the operation by the ligature, a patient should be confined to his bed for several days; the process of applying the ligature is attended sometimes with considerable pain; and life has been destroyed by tetanus, by pyæmia, and by low inflammation of an erysipelatous character spreading along the intestinal canal.

With the evidence now afforded us, we think it may safely be concluded that in certain forms of hæmorrhoidal disease, which forms are definitely marked and easily recognized, the application of nitric acid is superior in safety, in comfort, and in rapidity of cure, to the operation by the ligature.

In *prolapsus of the rectum*, in those cases where the prolapsus is of large size and of very long standing, where the mucous membrane has become very much thickened and changed in its structure and appearance, the acid, according to Mr. Smith, will do little or no good. In those cases, however, of simple prolapsus, where there are one or more large folds of mucous membrane continually down, and where the tissue is extremely vascular, presenting the appearance of smooth velvet, or is perhaps superficially ulcerated and readily bleeds, the strong nitric acid, he declares, will act like a charm.

A large number of interesting cases, both of hæmorrhoids and of prolapsus, are detailed by Mr. Smith, for the purpose of illustrating his statements in regard to the operation, both of the nitric acid and of the ligature, in these troublesome affections.

This little publication, therefore, must be considered as one of very considerable value, and as well worthy of the attention of surgeons. W. F. A.

ART. XXIII.—*Exposition of a Method of Preserving Vaccine Lymph, fluid and active; with Hints for the more Efficient Performance of Public Vaccination.* By WILLIAM HUSBAND, M. D., Fellow of the Royal College of Surgeons of Edinburgh, and one of the Medical Officers of the Royal Public Dispensary and Vaccine Institution, Edinburgh. 12mo. pp. 46: London, 1860.

WHILE the physicians of the United States employ invariably the dry vaccine crust for the purpose of vaccination, those of Great Britain, and we believe of Europe generally, prefer the fluid lymph taken from the vaccine vesicle about

the commencement or termination of the seventh day—previously to the formation of the areola. That the dry crust, when reduced to the consistency of cream by the addition of pure water, and inserted into the arm, will produce a genuine vaccine infection, affording as effectual a security against the subsequent occurrence of smallpox as when vaccination is performed with the recent lymph has been established by so large a body of facts collected by different observers, and in different localities, as to place it beyond all reasonable doubt.

There are two important reasons for preferring the dry vaccine crust over the fluid lymph for infection, admitting that the two are equally efficacious. The one is that we thereby avoid the necessity of interfering with the vesicle formed upon the arm in order to obtain our supply of lymph, and the danger thence incurred of rendering the vaccination less complete and effective. The second reason is that, in the dry crust the vaccine virus can be preserved in a state of activity for future use with much greater ease and certainty than in the form of lymph; all that is requisite for the preservation of the vaccine crust being to defend it carefully from the influence of the atmosphere and from damp, which can always be effected with the greatest ease.

Ever since the introduction of vaccination, nearly sixty-four years ago, one of the leading obstacles in the way of its successful performance and general diffusion, has been the difficulty of keeping vaccine lymph fresh and active for any length of time.

Dr. Husband believes, and not without sufficient reason, that the large annual mortality from smallpox in Great Britain results in a great measure, perhaps mainly, from the continually existing scarcity of lymph, and the ever recurring delay in procuring it when it is wanted.

A remedy for the scarcity of pure and efficient vaccine virus everywhere complained of is much to be desired on sanitary grounds. Could physicians be kept provided at all times, and in all places, with the means for prompt vaccination, it is believed that the protection afforded by the vaccine infection would be more generally extended than it now is, and, in consequence, the ravages of smallpox would be effectually checked, and a material saving of human life effected.

We are convinced that, with a very little care, and a few simple precautions, which can be readily practised, the dry crust will furnish the practitioner a constant and reliable supply of pure and active vaccine matter, available at all times for immediate use. The crust we know from experience may be preserved for a long time, without its undergoing any change capable of impairing its efficiency, as a means of communicating a full and genuine vaccine infection. All that is necessary is to select crusts that are perfect in themselves, and that have not been prematurely detached from the arm, and to keep them scrupulously dry and secured from the action of the atmosphere. We have never, however, succeeded in preserving in the crust the vaccine virus active for so long a period as Dr. Husband assures us he has by inclosing pure lymph taken from a vaccine vesicle in hermetically sealed glass tubes. This gentleman states that he has vaccinated successfully with lymph that had been kept in this way for from one to seven years. As the result of a very large experience he has found that, after a lapse of from two to two and a half years, lymph preserved according to his method may with great certainty be depended upon; and that too after it has been exposed, during several hours daily, to a temperature of between 80° and 90° of Fahrenheit.

The plan of preserving vaccine lymph in glass tubes hermetically closed is by no means a new one. It has been for a very long period pursued by the French. From, however, some defect in the tubes themselves, or in the manner of charging and sealing them, it has been found that, in a very large number of instances, the active properties of the lymph attempted to be preserved in the French tubes is entirely destroyed.

The tubes made use of by Dr. Husband are simple straight cylinders open at both ends, having a tenuity that will enable them to be sealed instantaneously at the flame of a candle, with a cavity of sufficient size to contain enough lymph for one vaccination, and of such a length as to admit of both ends being hermetically sealed without subjecting the lymph contained in them to the heat

of the flame. The tubes, besides these conditions, upon which their value as a means for preserving vaccine lymph for future every day use essentially depends, must possess sufficient strength not to break easily in the mere handling.

The average dimensions of the tubes employed by Dr. Husband are as follows: Length $2\frac{3}{4}$ to 3 inches; diameter 1-28th of an inch; thickness of wall 1-200th of an inch. Dr. H. does not insist upon an absolute and rigid conformity to this standard, but at the same time, the tubes, he remarks, must vary from it only within certain limits, or they become unfit for their purpose.

In charging these tubes, the vesicles being punctured with a lancet, the end of one of the tubes, held in a position more or less inclined to the horizontal, is applied to the exuding lymph which immediately enters the tube by the force of capillary attraction. As much is to be allowed to enter as will occupy about $\frac{1}{7}$ to $\frac{1}{5}$ the length of the tube, according as its cavity is greater or less. The lymph within the tube is then to be made to gravitate towards its middle, by holding the tube vertically, and if necessary, giving it a few slight shocks, by striking the wrist on the opposite arm or the table. In no case should a tube be laid down until the lymph is thus made to assume a position in the middle of the tube, as the fluid concretes quickly about the orifice, and cannot afterwards be easily detached. But if it be made at once to pass from the orifice, the tube may be laid down, and half a dozen or more charged with lymph before sealing them. The latter process should never, however, be delayed too long, over five minutes, perhaps; as the lymph within the tube is apt, from evaporation, to become adherent, especially if more than ordinarily viscid, or if the calibre of the tube is unusually small, and it cannot afterwards be blown out when wanted for use.

If, in charging the tube the lymph do not exude freely from the arm, the tube may require to be drawn several times more or less obliquely across the surface of the vesicle or cluster of vesicles, until a sufficient charge has entered. Generally, however, if the exudation be copious, and a drop of some size has formed, the orifice of the tube need not, indeed ought not to touch the surface, but should be merely dipped into the clear fluid.

In sealing the tube the end at which the lymph entered is to be applied to the surface of the flame of a candle. It melts over, and is sealed immediately. The other end is to be treated in the same way—it being first, however, plunged suddenly—say half an inch—into the flame, and as quickly withdrawn, until it touches only the surface of the flame. By simply applying the end of the tube to the flame without first plunging it in, there is a danger that, while the glass is still soft, the heated air within the tube, by expanding, will form a minute bulb, which, from its tenuity, either gives way on the instant, or, what is worse, remains entire for a time, only to break afterwards by the slightest touch. This precaution of plunging the tube into the flame before sealing it is useful, also, in expelling a portion of the air, and so leaving less of it to be sealed up along with the fluid lymph.

In order to remove the lymph from a tube for the purpose of vaccination, the sealed ends are broken off, and the fluid contents blown out gently on the point of a lancet or vaccinator. The activity of vaccine lymph preserved in the manner above described, as indicated by the probability of producing with it perfectly normal vesicles, we are assured, "*is not affected by the length of time it has been kept*, at least within the ample limit of two years and a half. There does not," Dr. H. asserts, "appear to be any tendency at all to deterioration. The failures evidently do not increase in number as the lymph increases in age."

To remove as far as possible all chance of failure with the matter preserved in the tubes of Dr. H. it is recommended that vaccination be performed in the same subject with the matter of two tubes, taken from different infants. In this manner two successive vaccinations with different portions of virus are brought to coincide, as it were, and in this manner, provided there is no other cause of failure than such as are confined to the lymph itself, we actually square our chance of success.

"I do not mean to say," remarks Dr. H., "that once sealed up the lymph undergoes no change. I know not what changes may take place in it, but I do assert, after a very ample experience of the working of the method for twelve

years, that *the properties of the lymph remain entirely unaltered in so far as they can be judged of by the effects produced when we vaccinate with it.* I never saw any consequences follow from the use of old lymph, which I have not equally seen follow from vaccination with fresh matter. However long it is kept, it produces the genuine vaccinia, and nothing else. The only fear that any one need entertain in vaccinating with it is, that it may fail, but if it have been active at the time it was sealed up, and contain no admixture of pus or blood, I believe that he may be almost as confident of success as if he vaccinated from arm to arm. Possibly, though I speak here with hesitation, the more recent lymph is more likely to produce large confluent clusters, with active inflammation round them, while the older—that which is years old—is more apt to yield clusters of two or three *discrete* vesicles, or even a single vesicle, instead of a cluster. But the production of even one vesicle is of course decisive of the lymph having retained its virtue. It may have undergone a *diminution* of activity, or what is just as probable, it may have been deficient in energy from the first. But one thing is certain, that a single vesicle, small, retarded perhaps, and which an unpractised eye might suppose had not vigour enough to struggle onwards to maturity, is nevertheless as perfectly normal a specimen of the disease, as two large clusters would have been. And for the proof of this—take of the contents of that imperfect looking vesicle, and vaccinate with them, and you will reproduce vaccinia in its utmost apparent vigour. Such is the evidence upon which I rest the conclusion that vaccine lymph, the vehicle of the greatest gift which, through the instrumentality of medicine, divine Providence has bestowed upon mankind, instead of being as perishable as it is precious, is, on the contrary, under certain easily attained conditions, highly indestructible."

We believe that tubes similar to those described by Dr. Husband for the preservation of fluid vaccine lymph would be well adapted to preserve unchanged the dry crust. They can be readily procured, and are well deserving of a trial.

D. F. C.

ART. XXIV.—*On the Organs of Vision, their Anatomy and Physiology.* By THOMAS NUNELEY, F. R. C. S. E., Lecturer on Surgery in the Leeds School of Medicine, Senior Surgeon to the Leeds General Eye and Ear Infirmary, etc. etc. London: John Churchill, 1858. 8vo. pp. 373.

THIS monograph is valuable rather as collecting in a single volume a very considerable mass of matter before scattered in many places, than as presenting for consideration much that is new; but its author is evidently an investigator, not content to copy other men's observations without verifying them for himself, and such a man can by no means, in these days of transition, go carefully over the minute structure of an organ without doing good service, either by confirming truths as yet in doubt, by overturning old errors, or perhaps here and there bringing forward new facts.

The book is divided into seven chapters. Of these, three (chapters IV., V., and VI.) are strictly anatomical; Chapter IV. treating of the anatomy of the human eye, Chapter V. of the eyes of animals, and Chapter VI. of the eyes of fossil animals. The remaining chapters are devoted to the consideration of the senses generally, the feelings and ideas derived from the sense of vision, the laws of light as applied to vision, and the physiology of sight. These chapters are creditably written, but their style is somewhat prolix, and there is a great deal of redundant matter which might have been omitted in a scientific treatise (*e. g.* two poetical quotations from Milton, occupying two pages and a quarter, &c.). The anatomical chapters are less liable to this objection, and derive additional value from the fact that "nothing, so far as he recollects, has been described that he has not dissected," a remark which applies in this case to the microscopical as well as to the coarser anatomy of the organ. Of these chapters, that "On the Structure of the Human Eye and its Appendages" (Chapter IV.) is elaborately worked up, occupying 172 pages. Personal study, an anxious desire

to be exact, and the evidences of considerable anatomical ability, are recognizable on every page. At the same time we must confess to considerable disappointment at finding two important subjects completely ignored. The first of these subjects is the history of the *development of the eye* and of its component parts, a subject which has received considerable attention upon the continent, and which is of the greatest moment in determining the homologies and significance of certain peculiar and characteristic parts of the organ. From these investigations the most curious developments have resulted. Thus, the crystalline lens, for example, is shown by embryology to be homologous with the epidermis, in fact to arise out of the epidermis, the lens fibres being transformed epidermic cells. In the development of the eyes the embryonic skin, at the two points corresponding to the seats of these organs, projects into the interior in a sac-like fold, filled with epidermal cells, very much as occurs in the development of the sebaceous glands and the hairs. These cells, by their transformation, produce the lens. At first the lens retains its connection with the exterior, but this connection (the neck of the sac-like fold) dwindles first into a mere membrane (the membrana capsulo-pupillaris), then this atrophies, and finally no recognizable trace of the origin of the lens remains. We owe our knowledge of these interesting changes, above all, to C. Vogt, a brief account of whose results will be found in the second lecture of Virchow's *Cellular Pathology*. Such histories as the above are not mere idle philosophical curiosities, nor are they of value only in determining the classification of a tissue with this or that group; they are essential to the right comprehension of the pathological processes of the part, and assume from this stand-point, if from no other, a value which it is imperative to recognize.

We much regret, therefore, that the embryology of the eye has been ignored in this treatise; and still more do we regret that the author's plan has not embraced at least brief allusions to the *pathological anatomy*, and especially to the *pathological histology*, of the organ. These subjects are of acknowledged importance, and accurate information with regard to them is more difficult of access, especially to the *student*, than is the case with any subject treated of in the work. Scattered in foreign and English journals, rich materials have been accumulating for the last ten years on these subjects, which it would have been in the highest degree useful to render accessible.

The only reference to the pathological changes of the eye, that we have noticed in the volume before us, is at page 254, and the account there given of "the opaque cataractous lens," though correct as far as it goes, only describes one variety of cataract, a statement which will be appreciated by all who remember the excellent article on atrophy of the lens in Carl Wedl's *Rudiments*. The passage to which I refer describes the lens fibres as appearing "as though broken up; they are irregular in outline, the serrations are much less distinct and uniform, the fibres are no longer clear and homogeneous, but are granular, and separated more or less from each other; the individual fibres are swelled and bulging in some parts, disconnected and broken in others, just as those of the healthy lens are after having been subjected to boiling water or coagulating reagents. These changes appear to be greater towards the circumference than near the centre of the lens."

This description is illustrated by a drawing, Plate VI. Fig. 11 (incorrectly printed in the work as Fig. 14).

At the same time, however, that we regret the omission of these two important subjects, we cannot withhold our meed of praise for the work so far as it goes, and we cordially recommend it as a safe and pleasant guide to the student and young practitioner. J. J. W.

ART. XXV.—*The Pathology and Treatment of Venereal Diseases, comprising the most recent Doctrines on the subject.* By JOHN HARRISON, F. R. C. S. London: 1860. Octavo, pp. 176.

THIS volume contains, in a small compass, a very correct account of the pathology and treatment of venereal diseases. It is well arranged, and clearly

and succinctly written. It is just such a treatise upon the disease as was wanted. Ricord's Hunter and Acton are too unwieldy, they contain too much for the majority of medical practitioners, and all other special works are too imperfect or faulty. As to the accounts given of venereal affections in our systems of surgery, or complete treatises, they are remarkably full of errors.

On two points alone can the doctrines contained in this book be said to differ from those approved by the highest authorities on venereal diseases; and these are in respect to the possibility of preventing the infection of the whole system by destruction of the chancre, before it has existed a certain time, and in respect to chancre, always arising from chancre. Mr. Harrison says, it has been found by experience, that in the case of true syphilitic chancre, cauterization cannot be depended upon for the purpose of destroying the syphilitic virus before it can be absorbed into the system, and thereby preventing constitutional infection. Men of vast experience, who cauterize properly, are positive as to the fact, an infinitely more agreeable one to believe, of constitutional infection never taking place in those cases where a chancre is properly destroyed within a certain time after exposure to contagion.

In regard to the origin of chancre, Mr. Harrison says:—

"The question has been frequently agitated, whether the poison of syphilis can be generated anew at any time under favouring conditions? In reference to this, I would observe that, from cases which have come under my observation, I am convinced that there is always danger of contracting sores,—simple chancres at least—incurred by those who indulge in promiscuous sexual intercourse, and that even under circumstances when it might be supposed almost impossible that any disease could exist. The conditions which tend to favour the generation of the poison, I cannot but think, consist mainly in the admixture of the secretions of the male and female, altered partly by the irritated condition of the organs whence they are derived, and partly by decomposition." (p. 55.)

The best authorities in the matter are very decidedly against this opinion. Opinions differ here, however, just as they do upon the subject of the spontaneous generation of animals and vegetables. From the time of Aristotle and perhaps long before him, down to the present moment when the French Academy of Sciences is engaged in debating this vexed question, the truth of the maxim *generatio unius est corruptio alterius*, has been a grand subject of dispute. For our part we do not believe that the generation of a chancre comes from corruption, any more than the generation of an animal; we hold that every chancre comes from a chancre, as well as that every living thing comes from a preceding living thing.

A peculiarity in the spelling of rupia has been adopted by Mr. Harrison; it is always written by him *rhupia*. The spelling *rupia* has been sanctioned by custom just as much as that of *rose*, which also, if orthography must always be determined by the derivation, should be spelled *rhose*. This trifle is the only thing at all exceptionable which we have discovered in the whole book, after a most attentive perusal, so far as respects the manner in which it is written.

W. F. A.

Art. XXVI.—*Description des Eaux Minéro Thermales et des Etuves de l'Ile d'Ischia, etc.* Par J. E. Chevalley de Rivaz, Docteur en Médecine des Facultés de Paris et de Naples, etc. etc. etc. Sixième edition, Revue, Corrigée et Augmentée, 8vo. pp. 214, Naples, 1859.

Description of the Thermal Mineral Springs and Natural Vapour Baths of the Island of Ischia, etc. etc. etc. By J. E. Chevalley de Rivaz, M. D., of Paris and Naples. Sixth edition, revised and enlarged.

There is, perhaps, no place so rich in thermal and mineral springs as the island of Ischia, the Pythécusa of the Greeks. Entirely of volcanic origin, the subterranean fires to which it owed its birth being still unextinguished, though of diminished extent and fierceness, it is not at all surprising that the water of

its springs should in so many localities be of an elevated temperature, and impregnated, to a greater or less extent, with mineral substances; and that even numerous jets of steam should be found issuing from crevices in the soil, which, by the most simple appliances, are capable of being formed into the most efficient vapour baths.

The curative virtues that have been for ages ascribed to the mineral waters and baths of Ischia, together with the balmy and salubrious atmosphere of the island; the beauty of its scenery, as well as the charming prospects which there greet the eye in every direction, have always rendered it a favourite resort, not only of the valetudinarian, but of those also who desire merely a temporary place for relaxation from the cares, vexations, and anxieties of a life devoted to business, or from the wearing toil of protracted mental or professional pursuits, of all, in short, who desire to recruit their energies, whether of mind or body, in a healthful climate, and amid natural objects adapted to afford pleasure to the senses while they soothe and invigorate the entire organism.

Although it may appear at first sight that the island of Ischia is too far off to afford a convenient and desirable sanitary retreat for the sick, the overwrought minds and bodies of the people of these United States, yet when we consider how much nearer even more remote portions of the earth have been brought to us through the aid of steam, it is not impossible that the mineral springs and baths of Ischia may even become favourite fonts of rejuvenescence with the rich and fashionable of our land.

In the work before us we are presented with a most interesting notice of the island, comprising a concise account of its topography, productions, history, and present condition, in respect to population and resources; a more elaborate examination into the physical, chemical, and medicinal properties of its principal mineral springs; their mode of administration as remedial agents; with an exposition of the character of its different natural vapour baths, and their therapeutical application; and the general rules to be observed by patients during the use of the waters, internally or externally, and during their subjection to the action of the hot vapours in the form of general or partial baths.

The hot vapour which issues at different localities in the island of Ischia, appears to be nothing more nor less than water converted into steam by subterranean heat. It contains, at the present day, neither any gas nor mineral substance, whatever may have been the case formerly. In respect to the vapour which forms the bath of St. Lorenzo, Dr. Breislack supposes that, at one time, it was imbued with sulphuretted hydrogen, from the circumstance that in the immediate vicinity of this bath there exists a deposit of sulphur.

The following account of the baths of Castigliona will convey to our readers a very good idea of the manner in which the natural steam constantly generated by volcanic fires is adapted for use as a vapour bath:—

"The baths of Castigliona are situated in the midst of Casamicciola, upon an eminence composed of an irregular mass of blocks of lava, and projecting in a direction towards the sea. At the base of this eminence is the source of the thermal spring of the same name with the baths. The latter consist of two small buildings, called the lower and the upper baths. In the middle of the first is a pit, into which the patient enters, of about six feet in depth, and of less dimensions in length and breadth. At the bottom of this pit are the openings from which escapes the vapour, of the temperature of $50° + 0$ centigrade thermometer; the temperature of the external air being about $26°.25 + 0$. In the vicinity of this pit are other jets of hot vapour, having a temperature of $48°.75 + 0$. These are conducted through tubes of burnt clay, in order that the vapour may be resorted to in cases where it is desired that its application should be restricted to only certain portions of the body.

"The upper bath consists of a chamber cut out of the lava, of about 11 feet in height by 7 in breadth and 10 in length. It has no other opening than the low door of entrance. It is lit by a small dome of glass in the roof. A circular bench is placed over a pavement of glazed tiles, around which issue a number of jets of hot steam. When closed, the temperature of the chamber is sufficient to raise the centigrade thermometer to $44° + 0$. Two apartments, kept always in

excellent condition, are attached to this upper bath as places of repose for the bathers.

"There is no difference between the vapour received into the two baths besides what results from the amount of water they contain and the degree of heat they present. No gas of any kind is disengaged from the vapour—the walls continually exposed to its action present no trace of decomposition or of saline deposit. The water obtained from it by condensation in a suitable apparatus has no other properties than what are possessed by the purest distilled water. We are, consequently, to consider as a mere illusion the discovery which a distinguished author supposes he had made of a certain principle contained in the vapour, which is not otherwheres found in a state of volatilization. We can readily suppose, however, that formerly the vapour may have contained certain substances of which they, at present, exhibit no trace, the sources from which they were derived having become in the course of time exhausted."

It must be evident that as these vapour baths are simply baths of water vaporized by heat, all the effects they are adapted to produce upon the patients who make use of them are a softening and relaxation of the skin, an increase in the cutaneous transpiration, and of the activity of the capillaries of the surface generally.

Dr. Chevalley de Rivaz enumerates, among the affections in which they have been found beneficial, gout and rheumatism, white swellings and scrofulous tumours, chronic inflammations of the mucous membranes, contractions of the tendons, incomplete ankylosis, different forms of non-febrile dropsy, dysmenorrhœa, various chronic eruptions of the skin, etc. etc. etc. D. F. C.

ART. XXVII.—*De l'Alcoolisme. Thèse présentée au concours pour l'agrégation (section de Médecine et de Médecine Légale) et soutenue à la Faculté de Médecine de Paris.* Par V. A. RACLE, Médecin des Hôpitaux, etc. Paris: J. B. Baillière et Fils, 1860. pp. 122.

On Alcoholism.

WE do not know who invented the term "alcoholism," but it is certainly a very excellent one. Based upon etiology, it includes all the evil results of the abuse of alcoholic liquors, from mere temporary excitement to hopeless fatuity, serving as a sort of family name for the widely diversified phenomena embraced between these extremes.

This subject presents itself in various aspects, in all of which it is highly important. To the physiologist and medical observer the effects of alcohol upon the individual are of interest, as well as the medico-legal questions which arise out of them. Some of the most difficult problems in social science, in regard to morals as well as hygiene, come up for solution, if they can be solved at all, in connection with these matters. M. Racle's essay is mainly devoted to the physiological and medical side of the subject, although he has not allowed its other bearings to pass unnoticed.

Probably the worst types of alcoholism are to be found in Great Britain. Drunkenness prevails in Russia also to a frightful extent, as well as among the Germanic nations; and in our own country, although it occurs, if we may be allowed the expression, sporadically, it yet exerts a most disastrous influence upon the well-being of society. In France, whether by reason of the kinds of liquor in use, or because the Norman race are peculiarly insusceptible to the allurements of intoxication, offensive evidence of the abuse of alcohol would seem to be less common than in any other civilized country. Hence a French view of the subject of alcoholism is necessarily somewhat interesting.

M. Racle gives a very good description of the chemical characters of alcohol, of the various forms in which it is taken, and of its physiological effects. He quotes very freely from the writings of others, but always with due acknowledgment. Under the head of pathological effects of alcohol, he treats first of the

general effects—drunkenness, sudden death, the condition induced by the habit of drinking, acute and chronic alcoholism; secondly, of the organic affections thus brought on; and thirdly, of the influence of alcoholism upon the duration of life, upon posterity, and in reference to the degeneration of the human species.

In connection with delirium tremens, which to the physician is the most important of the abnormal conditions brought on by alcohol, on account of its frequency and gravity, and of the judgment necessary in its treatment, two questions have been mainly agitated of late; viz., whether the disorder is due to a cumulative poisonous effect, or to the sudden abstraction of an accustomed stimulus, and what is the line of treatment proper to be pursued. Unfortunately M. Racle passes both these questions over almost entirely, so that we are left in the dark as to the opinions of the profession in France in regard to them.

The remaining portions of this essay are extremely concise; they are devoted to different medico-legal and hygienic matters. M. Racle speaks of temperance societies as having been found very useful in America, "where they have multiplied since 1813." Without any desire to undervalue these institutions, we must remark that their importance was at one time much overrated. Where a mutual supervision is exercised by the members, such compacts may be of advantage; but the mere signing of a pledge, in a moment of enthusiasm, has in numberless instances proved utterly nugatory against a temptation so besetting as that of intoxicating liquors. A tacit but practical acknowledgment of this fact is to be found in the circumstance that the opponents of intemperance have almost entirely abandoned this method of insuring reform.

Although this essay of M. Racle's can hardly lay claim to the title of an exposition of the subject of alcoholism, it presents a very excellent *résumé* of it, and will at any rate be suggestive to those who may desire to investigate the matter more deeply. J. H. P.

ART. XXVIII.—*A Treatise on Medical Electricity, Theoretical and Practical, and its Use in the Treatment of Paralysis, Neuralgia, and other Diseases.* By J. ALTHAUS, M. D. Philadelphia: Lindsay & Blakiston, 1860. pp. 354.

ALTHOUGH a very large majority of those who are engaged in medical or surgical practice have, in the course either of their preliminary or of their professional education, acquired some general ideas as to the phenomena of electricity, yet their knowledge of its laws is, for the most part, much too superficial to enable them to employ it therapeutically. The object of the volume before us is, as its title indicates, to assist the profession at large in making use of this most powerful agent in the treatment of disease; and its author may congratulate himself upon having materially contributed to the advancement of medical science.

Dr. Althaus has arranged his subject under five heads, in as many chapters. He first describes the different forms of electricity—static or frictional, dynamic, including galvanism and electro-magnetism, and animal; next, its physiological effects upon the living organism and its component parts; in his third chapter he discusses the apparatus for its medical application; fourthly, he treats of its use in diagnosis; and lastly, of its therapeutical employment. Atmospheric electricity and lightning form the subject-matter of a brief appendix.

Under the head of electro-physiology, Dr. A. has given a very interesting *resumé* of the results arrived at by Weber, Matteucci, Schönbein, Du Bois Reymond, Nobili, and others. The most interesting portion of this chapter, and the most important, is that relating to the electrization of the nervous and muscular systems. Dynamic electricity is the form employed in these researches, as well as for remedial purposes, on account of the convenience of generating, regulating, and localizing it.

Daniell's battery, consisting of zinc plunged in salt or acidulated water, and copper in a solution of sulphate of copper, is the one preferred by Dr. Althaus for medical use. It would require a greater space than we have here at command to pass in review the various forms of apparatus invented by Cruikshank,

Middeldorpff, Ellis, Breton, and others, for galvanization, or the application of the continuous current of galvanic electricity; or those of Clarke, Duchenne, and others, for Faradization, or the employment of localized induction currents. Among the former, Pulvermacher's chain has obtained much favour in this country; among the latter, we believe that the magneto-electric apparatus of Davis is most generally used.

In his fourth chapter, on the use of electricity in diagnosis, our author quotes the opposing views of Dr. Marshall Hall and Dr. Todd, as to the influence of cerebral disease upon the degree of irritability of the muscles; he coincides with Dr. Todd in the opinion that in this respect cases of paralysis may be divided into three classes:—

"1. If the excitability of the muscles—or rather the polarity of the motor nerves—be *increased* in the paralyzed limb, the case is one of *cerebral paralysis*, connected with an irritative lesion within the cranium.

"2. If the excitability of the muscles be nearly or totally *lost*, we have in all probability either *lead palsy* or *traumatic paralysis;* but it must be kept in mind that certain hysterical and rheumatic palsies of long standing present the same peculiarity; and that it also may be found in cases of disease of the brain and the cord.

"3. *If paralyzed muscles respond readily to the electric current*, there is no lead in the system, nor is the connection between the motor nerves of the paralyzed muscles and the cord interrupted; but if such cases are of *long standing*, they are due to *brain disease;* and if they are of *recent standing*, they are generally instances of *hysterical, rheumatic*, or *spontaneous* paralysis."

Chapter V., on the therapeutical uses of electricity, is, for obvious reasons, the most important one in this work.

The medical employment of this remedy is chiefly for the relief of affections of the nervous system—loss of power, spasm, neuralgia, and anæsthesia. But, as Dr. Althaus remarks, these conditions are merely symptoms, capable of being produced by widely different disorders; and their causes must be carefully made out before electricity is resorted to.

As might reasonably be expected, cases of paralysis from intra-cranial disease are not very often amenable to electricity, which promises much more, we are told, in "cases of hysterical paralysis, rheumatic paralysis, lead palsy, incomplete paralysis of the lower extremities, connected with disease of the urinary organs; cases of paralysis remaining after acute diseases, such as typhus, cholera, and cases of spontaneous paralysis, in which it is impossible to distinguish the cause of the lesion. Finally, cases of perverted nutrition and atrophy of the muscular substance are almost always beneficially affected by the application of electricity."

Cases of paralysis from brain disease may, as pointed out by Dr. Todd, be divided into three classes, according to the state of the muscles of the part or parts affected. If these be relaxed and non-resistant, a carefully localized application of electricity may have a good effect. If there is rigidity, coming on at the outset, interference in this way would be useless. If, however, the rigidity succeeds a period of wasting and relaxation, there are cases in which the antagonist muscles may be electrically excited with advantage.

Various local palsies are enumerated by Dr. Althaus as likely to be benefited by electricity. The muscles of the eye, and those supplied by the facial nerve, may have their function restored in this way. Hysterical aphonia seems to have yielded readily to Faradization. Wasting palsy, hopeless under any other form of local treatment, may perhaps be arrested, or even corrected, by the judicious and persevering use of electricity. Intestinal atony, and paralysis of the bladder, when not due to any cerebral or spinal lesion, may in like manner be obviated. Dr. Althaus states that he has relieved cases of amenorrhœa by means of electricity, and quotes the similar experience of Golding Bird, Duchenne, and others; Becquerel, however, did not find it effective in a single instance. We are inclined to object to this merging together of all cases in which the catamenia are wanting, in view of the purely symptomatic character of this circumstance; perhaps there is no abnormal phenomenon which needs to be more carefully traced back to its source than this, in order to a judicious choice of treatment.

Among spasmodic affections, chorea and writer's cramp are mentioned by our author as having been relieved by electricity, which he thinks might also prove beneficial in this form of wry-neck, in tetanus, and in hysterical cramps.

Anæsthesia, as regards either special or general sensibility, is amenable to improvement in various degrees under the use of electricity. When of a hysterical form, Dr. Althaus regards it as speedily curable by this agent, which is also very valuable in many cases of insensibility from poisoning.

Neuralgia, when caused by wounds or structural lesions of the nerves, of the passages through which their course lies, or of important organs, affords hardly any chance for the successful operation of electricity. When, however, it seems to be a mere morbid exaltation of sensibility, or is of a rheumatic character, Faradization may be resorted to with advantage.

In regard to the surgical uses of electricity, we think Dr. Althaus speaks a good deal in the manner of a medical theorist. Perhaps more is to be looked for in this way in the treatment of aneurisms and varices than in any other department of practice, unless it be in the prevention and cure of bed-sores. The time may come when lithotomy and lithotrity are superseded by the galvano-electric current, but the results hitherto attained have not been such as to indicate its near approach; nor do we think that the actual cautery is any less painful when the source of the heat is changed. From the past history of surgery, as well as from the practical experience of the present day, we may learn that the utmost caution is to be maintained in abandoning principles and methods which have been already tested with success, for those which merely hold out brilliant hopes. As a general rule, the simpler the means used the better; we cannot do away with the elements of uncertainty in the material upon which we have to work, but we can narrow them down in the appliances to which we resort.

The little volume which has now been discussed will undoubtedly be of great service to medical men. To those who simply wish to employ electricity in exceptional cases, it will afford an excellent manual; to those who are desirous of pushing their investigations further, it supplies abundant references to the literature of the subject, as well as a clear exposition of its fundamental principles. J. H. P.

ART. XXIX.—*Proceedings of the American Pharmaceutical Association, at the Eighth Annual Meeting, held in Boston, Mass., September*, 1859, *with the Constitution and Roll of Members.* Boston: Press of Geo. C. Rand & Avery, 3 Cornhill, 1859.

THIS is the eighth exposition of the annual labours of an institution now permanently organized and placed upon a successful basis of operation. In the year 1852 the pharmaceutists of the United States, following the example of their medical colabourers for the public weal, determined to co-ordinate their efforts, with the view of advancing the science under their especial cultivation; of promoting harmony and good feeling among those whose interests were similar; of correcting abuses which have hung over the occupation of dispensing and vending medicines, and of securing generally the elevation and prosperity of the profession of pharmacy. In this enterprise they have been eminently successful, and, judging from the last and the present annual record of their proceedings, seem to be becoming more enthusiastic and effective each succeeding meeting. They have demonstrated effectively that in union there is strength, and that it is only necessary to continue their useful undertaking to secure the highest respect and commendation from the community. With the view of pointing out the scope and the utility of the labours of our pharmaceutical co-operatives, we shall devote what space is at command to the examination of the present volume of proceedings.

The volume is printed in handsome style, and consists of 416 pages, commencing with a report of their minutes. From these we learn that the meeting at Boston, as heretofore, was well attended; *fifty-five* members having been

present, among whom we recognize the most respectable and accomplished druggists and apothecaries of the country. It may be stated that the delegations are composed of representatives of the pharmaceutical colleges and associations of the principal cities of the Union; but additionally to these, in order to give this body a more extended influence, the plan of permanent membership has been adopted, which brings into active co-operation a very large number of efficient individuals.

As is usual with such associations, the regular business was preceded by an appropriate address from the retiring president, and a similar one from his successor, when regular business matters were entered upon. Throughout the minutes we notice interesting matters which are there described in connection with each day's business, among which are communications from the Patent Office with reference to the introduction of seeds and the success in growing plants belonging to the materia medica. In looking over the list of subjects, either reported upon or submitted with this intention, we have been impressed with the highly practical nature of the inquiries which have occupied the attention of the association. There is one feature in these minutes that must strike forcibly one who has noticed the wranglings and waste of time upon points of order on abstract questions so common in public meetings, and that is the directness with which subjects can be met and disposed of by practical men of business, whose interests are involved in coming to their conclusions, and whose minds are well balanced upon all issues of utility. In fact the debates and business-like tact exhibited by this association may afford a useful lesson to more pretentious conferences. The main substance of the volume is made up of reports, and we may be permitted to give of these a passing notice, commencing with the "Report of the Committee on the progress of Pharmacy," which is an interesting summary of subjects and articles which have been brought forward within the year, both abroad and at home. It includes practical pharmacy and chemistry.

The next subject reported upon is "Pharmaceutical Associations and Education," in which the facilities of instruction in pharmacy and the kindred associate branches are set forth. It commences with a reference to the oldest and for a long time the only College of Pharmacy in the United States, namely, that of Philadelphia, which, like the school of medicine of this city, may be termed the parent school. It appears from this report that there are now seven colleges of pharmacy in this country, besides the one alluded to: one in New York, one in Baltimore, one in Boston, one in Cincinnati, one in Richmond, and one in Chicago; while a pharmaceutical association has been formed in Washington, and one in San Francisco. These are primary associations, which, from the experience of the results in Philadelphia, have had a beneficial effect upon the profession. Three of the associations enumerated have established schools, which are spreading their advantages through the community. In connection with this report is an exposition of the additions made during the past year to what is specifically designated "Pharmaceutical Literature," some remarks on the "Drug Market and Manufactures," and a Necrology.

The next report is from the committee on "Weights and Measures." This is one of the most difficult subjects falling within the range of pharmacy. The report is from the pen of Alfred B. Taylor, of Philadelphia, who has most industriously and learnedly gone over the whole ground, presenting the most elaborate treatise upon weights and measures published in this country since the work of the late John Q. Adams, when Secretary of State. The labour of this report has been immense, and entitles the author to the highest commendation. The system of weights and measures has grown up with the progress of mankind, and complicated as it may be, is interwoven with the habits and usages of man: it, in fact, is part and parcel of his social existence. An exact, and at the same time simple and convenient mode of weighing and measuring has from time immemorial been sought for by rulers and governments; but custom and long established habit has proved an obstacle to theoretical perfection. So far the effort has proved Utopian, and it may be asked at the present time whether any real advance has been made in this direction. To break in upon the usages of exchange and commerce is no easy task; and we are of opinion that those who are enthusiastic in the matter, and who desire some modification of existing

standards, are doomed to disappointment. The decimal system, which has been so much lauded, and which recommends itself from its foundation in high mathematical science, and its simplicity, as it has been introduced in France, has not found universal favour, and has not supplanted the old weights in use by the general population, with whom they have been consecrated by habit. The question of weights in England and this country turns upon the employment of but one weight in pharmacy, and the tendency in the first is to substitute the Avoirdupois for Troy, to make it in every respect suitable for use. The convention which met recently at Washington, for the revision of the United States Pharmacopœia, determined that it was inexpedient at present to meddle with this portion of the work. What the New British Pharmacopœia Commission will do in the premises remains to be seen. So far as we are concerned in the present revision, the maxim is a good one, "to let well alone."

The next report is upon the "Revision of the Pharmacopœia." Ever since the association of the pharmaceutical profession with the medical, in the revision of the Pharmacopœia, assistance of an important nature has been rendered by the practical working members of the former. They have borne a large proportion of the burden of experimenting, and devising efficient means of arriving at positive results. These have been freely and liberally communicated, and we could point to many zealous pharmacentists whose labours have been of great value in furthering the accomplishment of the work. The report before us is a continuation of labours commencing and set forth in previous years, not only in the proceedings of this association, but in the journals of pharmacy. It will be of great service to the committee of revision, who can cull from it many important recommendations, as well as hints and information for the successful issue of their undertaking.

"Home Adulterations" is the title of the next report, and here we trench upon a subject that has occupied much attention on the part of both professions. The report is full of useful matter, well worthy of perusal, derived not only from authorities on this subject, but from special examination of articles, which were submitted in proof to the meeting. As the practice of adulteration is a foul blot upon trade, and as the cupidity and wickedness of dealers cannot be brought under subjection, either to law or conscience, the only plan is a full exposition of the means of detection, and to this the committee has, as far as possible, devoted itself.

We find in connection with these reports, which are general and intrusted to committees, some valuable ones on detached subjects. One on "Fluid Extracts," by Mr. Wm. Procter, is so full as almost to exhaust the subject. There are also some essays which are valuable additions, among which may be specified one on the "Therapeutic Value of Foreign and Indigenous Medicinal Plants," by H. A. Tilden; and another "On the Mercurial Compounds prepared with a New Mercurial Machine," by Dr. Edward R. Squibb.

We cannot conclude this notice without expressing our great pleasure in possessing this contribution to "pharmacentic literature," from the body of intelligent and highly scientific gentlemen who compose the association, and at the same time venture to predict that a continuance in future years of such praiseworthy efforts will maintain that reputation for practical and scientific pharmacy, which the profession in this country now holds, deservedly, in foreign lands. J. C.

ART. XXX.—*Food for Babes; or Artificial Human Milk, and the Manner of Preparing it and Administering it to Young Children.* By WILLIAM HENRY CUMMING, M. D. 12mo. pp. 100. New York, Anson D. F. Randolph, 1859.

THERE can be no doubt that a large proportion of the disease and mortality which occurs among infants is due to errors committed in respect to their diet—and it is not less certain that many of these errors are not merely the result of ignorance or carelessness on the part of mothers and nurses, but of erroneous

views inculcated by physicians in respect to the nature of the aliment adapted for the due sustenance of the system during infancy, and for the supply of materials adapted for its proper development and growth.

That the breast-milk of the mother—when she is healthy, well nourished on wholesome food, and in the practice of regular and sufficient active exercise, out of doors in a dry, wholesome atmosphere—is the only proper food for the infant, during the first months of its existence, is a truth that is taught us by Nature herself; and that to this food, should the infant be confined mainly if not entirely, for the first twelve months, at least, of its existence is not less clearly indicated by the lessons of experience and by the teachings of physiology.

The important question, however, is as to the food which is best adapted to supply the place of the maternal milk when, from any cause, the infant is necessarily deprived of this, and there is no possibility of furnishing it with nourishment from the breast of a healthy nurse. It is evident of course that that food is the best for an infant thus circumstanced which approaches the nearest, in its form and composition, to the breast-milk of the mother. Upon no other kind of food can healthy vigorous children be reared. Much of the bowel complaint, marasmus, and slow wasting disease, so common during the first period of existence is due to either an attempt on the part of mothers to substitute some other nourishment for the maternal breast, or to make up for a real or supposed deficiency in the supply of nourishment from the latter, or to compensate for its defective quality by a farinaceous diet, with or without milk, or one of an equally improper character.

In the little work before us, Dr. Cumming discusses with no little ability the subject of the proper diet for infants—more especially the one best adapted for their adequate nourishment in those cases in which there exists a necessity for their being reared without the breast.

Viewing the embryo from the period of conception, he shows the dependence of the newly developed being, from the moment of its existence to the close of its nine months sojourn in the womb, upon the blood of the mother, and its almost equally intimate dependence on her milk for many months after its birth: and, consequently the vast importance to the existence of man, during his fœtal and infantine stages of existence—to his full and symmetrical development—to his freedom from suffering and disease, that the blood and milk of the mother should be ample in quantity and pure in quality.

Nearly all the general principles advanced by Dr. C., and the major portion of his practical deductions from them, are perfectly correct. It is true, that we do not see the good that would result from strictly carrying out in practice the proposition of the author to confine the diet of the infant exclusively to that derived from the breast of the mother during the first eighteen or twenty-four months of its existence. On the contrary, we should in very many cases, anticipate injury to both mother and child were the practice invariably pursued. A robust, well developed infant may with perfect safety be taken from the breast, and placed upon a diet composed of some wholesome food, when one year old, while it is proper, in the case of puny, slowly developed infants, to continue them at the freely secreting breast of a healthy mother or nurse for a few months longer.

The so-called "artificial human milk" which Dr. C. recommends as a substitute for that of the mother, when this entirely fails—or in connection with it, when deficient in quantity—is obtained in two ways. The first, is by taking the upper third of a portion of cow's milk that has stood for four or five hours. This will be found to contain about fifty per cent. more butter than the ordinary run of cow's milk. To obtain one quart of this milk, three quarts of milk are to be set aside, and at the end of four or five hours the upper quart is to be carefully removed for use. The other way, and the one to be preferred in hot weather is to take milk from the latter half of that given by the cow at one milking, which contains double the amount of butter the produce of the first half of the milking does. If the cow gives eight quarts at a milking, the milk for use should be taken from the last four quarts obtained. It is of course understood the milk is to be that of a young, healthy, vigorous, well-fed animal, with a calf between two weeks and five months old.

The milk thus obtained when diluted with 1½ parts of water, and properly sweetened, Dr. C. believes to resemble in its composition most closely the natural secretion of the breasts in vigorous, healthy and properly nourished females.

That this "artificial human milk," as it is termed by the author, affords a very admirable article of nourishment to replace that which nature provides for the infant in the maternal breast, we have not the slightest doubt. Dr. Cumming has ascertained from ample experience that it presents to the child in the form best adapted for the action of its digestive organs, all the materials it needs for growth, development, warmth and activity.

We would suggest that the analysis of human milk given by Dr. C. differs very essentially from the analyses of Vernois and Becquerel, of L'Heretiere and of Simon. From the analysis of the latter especially, it would appear that the amount of casein is at its minimum at the commencement of lactation, and gradually increases up to a certain point, when it attains nearly a fixed proportion; that the amount of sugar is at its maximum at the commencement and subsequently diminishes, while the butter in respect to quantity is a very variable constituent of the milk. D. F. C.

ART. XXXI.—*The Institutes of Medicine.* By MARTYN PAINE, M. D., Professor of the Institutes of Medicine and Materia Medica in the University of the City of New York, etc. etc. etc. Fifth edition, 8vo. pp. 1109. New York: Harper & Brothers, 1859.

THAT a fifth edition of Dr. Paine's work should have been called for shows, we conceive, a healthful state of mind among the reading portion of the medical profession in this country. They who make it a duty to read and digest works of this class will not be satisfied with the meagre aliment to be derived from compounds and manuals. The work of Dr. Paine is no superficial digest of popular doctrines of physiology, pathology, and therapeutics, in reference to the human organism, but a philosophical exposition of the Institutes of Medicine, based upon well authenticated and correctly translated facts and observations. It is not merely an exposition of what others have believed and taught, but a methodical system of the philosophy of medicine, deduced by the author from what is known in respect to the vital and physical laws and functions of the living organism in health, and the rich fund of instruction acquired from the cautious observation of disease in its onset, phenomena, progress, and results, and from the empirical study of the effects of remedial agents at the bedside of the sick.

The institutes of medicine by Dr. Paine present an unquestionable claim to the title of originality. Out of the materials furnished by the medical observers of all times and all places, the author has constructed an edifice of his own; one, upon the whole, well adapted for the purposes to which it is dedicated. Although we are persuaded that, upon a close examination, many defects may be discovered in different portions of it, we still cannot but admit the solidity of its foundation, and admire the symmetry and skill exhibited in its general plan and execution.

The present is simply a revised reprint of the fourth edition, with the addition of a Supplement, embracing certain recent observations, which the author believes to be corroborative of some of the principal views taught by him in the body of the work. D. F. C.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Observations on Digestion, made on a Case of Fistulous Opening into the Small Intestine.*—Prof. Busch, of Bonn, has availed himself of the opportunity afforded by a case in which a fistulous opening into the intestine existed, of studying several points in regard to the physiology of the digestive process.

A woman, aged 31, in the sixth month of her fourth pregnancy, was tossed by a bull, one of whose horns lacerated the abdominal wall. At first there seemed to be no injury of the intestine; but at the end of three days a perforation appeared, resulting in the establishment of an opening through which food escaped. In six weeks the woman, although she ate much, had become extremely emaciated and weak. She was then taken to Bonn. Between the umbilicus and the pubes there was an aperture in the abdominal walls more than an inch and one-fifth in length, the bottom of which was formed by the posterior wall of the intestine; the upper and lower ends of the intestine were represented by two orifices at the angles of the wound. The position of the wound, the size of the intestine, the existence of valvulæ conniventes in large number, the fluidity of the chymous material which exuded from the upper end, and its grass-green aspect, led to the inference that the injury had affected the upper third of the small intestine. Nothing whatever passed from the upper to the lower opening, and several attempts to establish a communication proved fruitless. The patient was allowed to eat as much as she wished; but as this was not sufficient, food—principally protein, as soups, eggs, etc.—was thrown into the lower opening; frequently, also, pieces of cooked eggs and meat were thrust into it by the finger. Her general health improved under this treatment, and after a time the supply which she received by the stomach was sufficient.

Hunger.—The patient at first had a most voracious appetite; she never felt satisfied. She continued to eat, even when the first portions of food which she had taken were escaping through the opening. She then would say that she felt better, but was still hungry. Prof. Busch infers that hunger is composed of two separate sensations—one general, the other local; the former resulting from the want of material to repair the waste of tissue.

Movements of the Intestine.—The bottom of the opening was formed of a long portion of the posterior wall of the intestine, the anterior wall having been destroyed by gangrene; there was also a large ventral hernia, the coverings of which were so thin that the least modification in the size of the intestine was as clearly perceived as if it had been laid bare. During the ordinary peristaltic movements it was not possible to observe any difference between those which took place in the portion of intestine covered by skin and in that which was exposed to the air. When, on the other hand, the upper part of the intestine became invaginated in the opening, this portion contracted much more actively,

and was sometimes the seat of a tonic contraction, which stiffened and raised it like a solid body.

The intestinal movements were not continuous; there were often intervals of complete rest during more than a quarter of an hour. During these intervals neither exposure of the part to the temperature of the room, nor the careful introduction of the finger, would excite peristaltic action; even the taking of food would not excite it at once. There was no regularity in these intervals of action and rest, except during part of the night. Up to 10 or 11 P. M. there was a flow of chymous material or of liquids from the upper end of the intestine, so that, at first, the patient was always wet, in spite of all care. No discharge then took place until 4 or 5 o'clock in the morning. When she made a hearty supper, a part escaped at once, but the rest remained in the digestive canal until the next morning. This pause in the intestinal action did not arise from sleep, for it was observed when the patient lay awake at night; and the matters escaped in the daytime while she slept as well as when she was awake.

The escape of the matters contained in the intestine was not continuous, but jerking; and a propulsive movement of the intestine was even observed in the neighbourhood of the opening. It is possible, however, that this was only the result of the adhesion of the intestines to the abdominal wall, which furnished a *point d'appui*.

Reversed peristaltic movements existed, and frequently impeded the experiments. Thus the aliments introduced into the lower opening of the intestine were often rejected after some hours, and fatty matters even after some days.

OBSERVATIONS ON THE LOWER END OF THE INTESTINE. *The Intestinal Juice.*—As the lower end of the intestine received nothing whatever from the upper end, it was possible to study in it the intestinal secretion in its pure state. The quantity of this, in the physiological condition, was not great. On introducing a bivalve speculum, the intestinal mucus could be plainly seen between the valves; it was white, or of a very slight rose tint. Sugar, tied up in a net bag, and introduced into the intestine, was not completely dissolved in a quarter of an hour. Under pathological irritation, the quantity of juice was increased; this was ascertained on two occasions. It was then thick and consistent. The reaction was always alkaline. The quantity of solid matter contained in it varied, according to numerous observations, from 7.4 to 3.87 per cent., the mean being 5.47 per cent.

Digestive Action of the Intestinal Juice.—The digestive property of the intestinal juice has been denied by some, while others have, correctly, admitted it. At the commencement of the treatment the state of the patient began to be improved only when she was fed through the lower opening of the intestine. Into this were introduced soup, beer, gruel, hard eggs, and meat cut into small pieces. During the six weeks previous to her entrance into the hospital the woman had only two small, hard stools. After being fed in the way above described, she had at first an abundant evacuation every twenty-four hours; but later it became necessary to use enemata. The evacuations resembled ordinary fecal matter in form and consistence; but the colour was grayish white, and they emitted a repulsive putrid odour. No portions of egg nor of meat were found in them.

In order to study the digestive action of the intestinal juice on different foods, a weighed portion of food was inclosed in a net bag, and introduced into the intestine through a speculum. To ascertain the quantity dissolved, the loss of solid matter was sought. For this purpose a known quantity of the same food was dried, and the amount of solid matter estimated; from which, on drying at the same temperature the portion removed in the bag, it was easy to calculate the loss which the latter had sustained.

Protein Matters.—Coagulated albumen and cooked meat always lost substance, and the morsels, when drawn out, presented traces of decomposition. The angles of the cubes of albumen were rounded, and the surface had a cheesy aspect, and peeled off in grumous masses when washed with water; the meat was flabby, soft, and pale. The masses had a penetrating putrefactive odour; and the presence of hydrochloric acid evolved ammoniacal vapour. This was not the result of ordinary putrefaction from moist heat; for none of the experi-

ments lasted above seven hours, and decomposition commenced at an early period. The cause can only be sought for in a peculiar ferment furnished by the intestinal juice. Of albumen, the percentage quantity digested varied from 35.35 in six hours and a half to 6.5 in five hours and a quarter; that of meat varied from 29.9 in seven hours to 5.5 in five hours.

Starch and Sugar.—Starch, dried at 212°, was introduced. The percentage loss varied between 63.53 in five hours and a half, and 38.5 in six hours. After injecting a solution of starch into the lower end of the intestine, the stools were found to contain neither starch nor sugar, but only traces of dextrin. The starch underwent conversion into grape-sugar, which was always found in the bag. Cane-sugar was not changed into grape-sugar; a large portion was found in the feces in the state of cane-sugar, and the urine contained no trace of it.

Fats.—These were submitted to experiment on two occasions. On the first, more than three ounces (avoirdupois) of melted butter were introduced, in small portions, into the intestine. After ten days the patient spontaneously had a white very fetid stool, of the consistence of *bouillie*. On being examined, after cooling, it was found to be covered by a layer of solid fat; the subjacent portion, under the microscope, appeared chiefly composed of large fat-drops and fat-crystals, mixed with epithelial cells. The evacuation had an acid reaction, and the vessel in which it had been treated by ether evolved an odour of butyric acid. A little more than one-sixth of the quantity of fatty matter administered was found. A large portion, however, of the butter had been expelled from the intestine by reversed peristaltic movements, so that probably little or none of it was absorbed. The second experiment, which was made at the end of a fortnight, with cod-liver oil, gave precisely the same result.

Observations on the Upper End of the Intestine.—Alimentary matters, contrary to the general supposition, did not remain long in the stomach. In the morning, when the intestine was empty, the peristaltic movements expelled frothy mucus. On giving food which could be readily recognized, the first portions appeared at the opening in about a quarter or half an hour; and, after a copious meal, three or four hours were sufficient for the expulsion of the whole.

The reaction of the mixture of digestive fluids, expelled in the fasting state, was almost always neutral, rarely faintly acid or alkaline. The intestinal juice, when carefully washed from the fistulous opening, was constantly found to be alkaline. After a meal, the chymous mass gave very variable reactions; at first protein compounds seemed to produce an alkaline or neutral liquid, while fat, starch, and sugar gave an acid one; but repeated observations showed so great variations in these respects, that no fixed result could be arrived at.

The solid aliments contained in the chyme did not appear much changed on simple inspection; but on touching the surface of coagulated albumen and pieces of meat, they were found to be more friable than in the fresh state. The muscular fibres of meat were divided both longitudinally and transversely, as is already known to be the case; and this was observed more when the meat had been very finely cut up. These solid alimentary matters floated in a large quantity of biliary fluid; but after the eating of large quantities of cabbage, turnips, and potatoes, a small layer of liquid separated only after the mixture had been allowed to rest a considerable time. Whenever the diet during the day was confined to a single article of food, the chymous mass was more consistent towards the evening than in the morning; while after a variety of food the quantity of liquid was the same at different hours.

After the injection of feculent food, the chyme contained a large amount of starch and sugar; while after cooked protein compounds a slight turbidity was very rarely produced on boiling the liquid.

The digestive fluids were rejected in such a mixed state, that no definite result could be derived from their examination. The absence of indications of the presence of sulphocyanide of potassium showed that saliva was not present. Besides bile and pancreatic juice, there must have been a large amount of fluid supplied by the stomach, for the total sum of solid matters was very small; the average was 2.48 per cent., the extremes 2.56 and 2.34. This is remarkable, since in man the gastric juice itself gives 3 per cent. of solid residue.

Cane-Sugar.—After having ascertained that the fluids passed from the opening

in the morning, when the patient had been confined to an exclusively animal diet on the preceding day, gave no reaction with the potash and copper test, she was made to take, fasting, solutions of cane-sugar. In the fluid which escaped, only a small part of the sugar was found—as grape-sugar, never as cane-sugar. This observation confirms the opinion of M. Bouchardat.

Raw Albumen.—In the morning, the albumen of four eggs, beaten up with a little water, was given to the patient. After four hours there was collected a moderately large quantity of an alkaline liquid, thready, mixed with bile, and containing no coagulated albumen. If the gastric juice had solidified this substance, portions of it would have been found. The quantity of albumen excreted was found to be 36 per cent. of the amount taken in.

Gum Arabic underwent no change, and escaped almost entire from the opening.

Gelatin.—Of this substance nearly two-thirds were absorbed; the remaining third, which escaped, had the ordinary chemical characters, except that it did not gelatinize, and that its warmed solution was rendered turbid by acetic acid.

Milk.—After milk had been taken, an acid liquid escaped, in which the casein had been coagulated by the acids of the stomach, not in large masses, but in fine particles. The filtered liquid contained a portion of uncoagulated casein.

Fats.—A large dose of cod-liver oil was given to the patient in the morning, and on each occasion the quantity of liquor that escaped was relatively very large. Its reaction varied; most frequently it was acid, rarely alkaline. In the latter case the fat was so finely divided that it could not be recognized by the naked eye; but under the microscope oil-globules were found in the molecular state. When the reaction was acid, the greatest part of the fat formed a similar emulsion, but on the top there floated a smaller quantity of oil, in large drops. When the alkaline emulsion had been kept during twenty-four hours, it became acid, and a part of the oil floated on it in large drops.

Digestibility of certain Articles of Food.—Prof. Busch endeavoured to obtain information on this subject by examining the quantity of ingested aliment which arrived at the opening in the upper part of the intestine. In one experiment, in which two ounces of sugar were taken, only one-thirtieth part reappeared; in another, in which three ounces were taken, one-fifteenth was found. Of albumen, the proportion of the quantity absorbed to that found in the discharged chyme was as 7 to 4; of gelatin, almost as 2 to 1.

Prof. Busch has drawn up a table which shows the proportion between the weight of the material ingested and that of the chyme thrown out.

	Food taken.	Chyme.
Fat	1	6
Gelatin	1	3.675
Boiled eggs	1	2.73
Meat	1	1.73
Milk	1	1.25
Turnips	1	1.2
Cabbage	1	0.91
Potato-soup	1	0.7

With regard to the latter two articles, the quantity of juices secreted is too small to make up for the loss caused by absorption into the stomach and the commencement of the small intestine; while fat and gelatin give rise to a considerable secretion of fluid.

In examining the relation between the quantity of solid matter taken in and that found in the chymous mass, the loss representing the quantity absorbed, the following results were arrived at:—

	Solid matter taken in.	Solid matter rejected.
Gelatin	1	0.94
Boiled eggs	1	0.76
Milk	1	0.62
Cabbage	1	0.58
Potato-soup	1	0.53
Turnips	1	0.49
Meat	1	0.35

Although these numbers cannot be supposed to possess an exact mathematical value, they nevertheless afford important instruction.

Two experiments were made during periods of twenty-four hours; once with a varied animal diet, and at the other time with a mixed animal and vegetable diet. As far as the results of these experiments showed, the amount of matter absorbed from the mixed diet was about ten times as great as that absorbed from the purely animal diet. While the patient was taking the animal diet, the matters which escaped from the opening consisted at first (as always) of a liquid in which floated fragments of meat and of egg; gradually, however, the quantity of fluid diminished, the mass became more consistent, and at last, especially on the following morning, there escaped a mass having the appearance and smell of pure fresh meat, not coloured by bile. Under a mixed diet, the chyme preserved its liquid consistence throughout, except in the middle of the day, when it became more consistent after the patient had taken some legumes at dinner.

Digestive Properties of the Fluids discharged from the Small Intestine.—In the course of his researches, Prof. Busch observed that the liquid which escaped from the opening, especially after the ingestion of protein aliments, passed very slowly through the filter, and that the fragments of meat and egg continued to diminish in size while lying on the filter, so that at the end of the operation small portions only of solid matter were left. This proved that the digestive influence of the mixture of gastric, pancreatic, and intestinal juices, and bile, was exerted on the protein compounds from the commencement of the small intestine; and this occurred, whatever was the reaction of the fluid. But the aliments had been in contact with pure gastric juice in the stomach; it was therefore interesting to ascertain whether the mixture of digestive juices possessed equal power on food plunged directly into it. Experiment on this point showed that coagulated albumen and roast veal, placed for a period varying from six to eight hours, at a low temperature, in contact with the alkaline fluid which escaped from the fistula after the ingestion of fluid albumen or of meat, lost a small quantity of solid matter, and were slightly disintegrated. But this action was incomparably less than that which was exerted by the mixed juices on matters which had been submitted to the action of pure gastric juice. It follows from this that alimentary matters leave the stomach while imperfectly digested, and that their digestion is performed in great part in the intestines.—*British Medical Journal*, April 7, from *Archiv für pathologische Anatomie und Physiologie*, Bd. xiv., and *L'Union Médicale*, March 15 and 20, 1860.

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2. *Structure of the Cerebro-spinal Capillaries.*—M. C. Robin considers at length two anatomical conditions bearing on the phenomena of the cerebral circulation. These are, firstly, the disposition of the fibre-cells around the capillaries; and secondly, the existence of a special external enveloping sheath which they possess.

The capillaries themselves he divides into three kinds, according to their calibre. The smallest kind varies in diameter, from that of a blood globule downwards, is composed of a single homogeneous unfibrillated tunic, and is provided with longitudinally-placed nuclei. A larger variety possesses double walls, of which the inner one contains nuclei arranged longitudinally, whilst the outer one is entirely formed of fibre-cells containing nuclei with a transverse axis. The third and largest kind of capillary consists of three tunics—viz., of the two entering into the composition of the second variety of capillary, and of a third or adventitious one formed of longitudinal, parallel, and undulating fibrils.

As respects the muscular or contractile nucleated fibres which abound as well in the capillaries of the pia mater, retina, and ciliary processes of the iris, as in those of the substance of the brain and spinal cord, they are so intimately adherent that the line of junction between them is generally undiscernible. They may, however, be well studied after macerating a portion of the tissue containing them for a few days in very dilute nitric acid (10 per cent.), by which, although the nuclei are rendered less visible, the line of juxtaposition of the fibre-cells become more visible. By this process they very frequently become quite isolated, falling off into the surrounding liquid, or are seen only partially removed, so as still to adhere slightly in a ring-like form not entirely

surrounding the capillaries. In the third class, or largest sized capillaries, the addition of the acid will be found to have destroyed the striated appearance of the outermost membrane, and to have made it granular, but at the same time to have made the transversely-striped character of the fibre-cell tunic very apparent, and to have rendered the cells less regular and of a yellowish hue. When the fibre-cells have been isolated, the nuclei and the substance of the fibres are seen to have become homogeneous.

Passing on to the consideration of the investing tunic or sheath of the capillaries, Robin states that around a certain number of capillaries of the brain, spinal cord, ependyma, and pia mater, such a covering exists at some distance from the proper walls of the capillary, and that the space between the vessel and the tunic is occupied by a colourless liquid mixed with molecular granulations or small free spherical nuclei, about $\frac{1}{300}$th of a millimetre in size, and varying in number in different parts, in some places being so abundant as quite to obscure the nuclei of the capillary. Almost always in persons above forty or forty-five years of age the space between the vessels and this outer sheath contains much fatty granular matter, and frequently large grains of amorphous hæmatosine, isolated or conjoined. This special sheath could not be traced in capillaries beyond a third of a millimetre in diameter; but when in the smallest vessels it is found to commence, it is seen to be exquisitely delicate, and to be adherent to the capillary walls. The exact ending of the sheath towards the largest sized vessels could not be made out. This sheath is insoluble by acetic acid, devoid of nuclei or granulation, and quite transparent, being generally undulating at its margins. It follows the capillaries in all their anastomoses, and at a bifurcation is generally dilated. The spherical nuclei beneath the sheath range about $\frac{1}{300}$–$\frac{1}{600}$th of a millimetre in size, are finely granular, and insoluble in acetic acid. They bear a certain analogy to the leucocytes of lymphatics, and from their position, &c., particularly to those of the lymphatics which are found surrounding a part of the circumference of arteries in reptiles and Batrachiæ. Occasionally fatty granulations are seen floating between the above-named nuclei.—*Med.-Chir. Rev.*, April, 1860, from BROWN-SÉQUARD'S *Journ. de la Phys.*, Oct. 1856.

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3. *Experimental Inquiry into the Action of Alcohol on the Nervous System.*—Dr. W. MARCET relates (*Med. Times and Gaz.*, March 3 and 31, 1860) some experiments made by him to determine the action of alcohol on the nervous system. He gives the following conclusions as the results of his investigations:—

1. That alcohol acts through the circulation principally, though not exclusively, on the nervous centres by means of absorption.

2. That alcohol exerts a slight but decided action on the nervous centres through the nerves, independently of the circulation.

3. That the influence transmitted through the nerves may be of two kinds:—

(*a.*) It may give rise to a shock, or temporary complete suspension of sensation and of muscular motion (with the exception, perhaps, of that of the eyelids), although respiration continues.

(*b.*) It may produce no other visible effect than shortening life.

MATERIA MEDICA AND PHARMACY.

4. *New Application of Chloroform in Neuralgia and in certain Rheumatic Complaints.*—Mr. LITTLE made the following communication to the Medico-Chirurgical Society of Edinburgh.

During my residence in Singapore, East Indies, I was at one time in the habit of using liquor ammoniæ to produce an immediate blister, when instantaneous counter-irritation was thought necessary in certain cerebral affections, etc.—a piece of lint soaked in ammonia being applied to the part, and covered with oil-

silk, when in a few minutes so much irritation was produced as to raise a blister. In administering chloroform to my patients, I noticed that their lips were often partially blistered by it; and recollecting the mode of using the ammonia, I thought of trying the chloroform in the same way, but found that neither oil-silk nor gutta percha tissue would answer. I then used a watch-glass to cover the lint soaked in it, and with the best effect.

The manner of application is to take a piece of lint, a little less in size than the watch-glass to be used (which need not be more than two inches in diameter), to put it on the hollow side of the glass, to pour on it a few drops of chloroform sufficient to saturate it, and then to apply it at once to the part affected, keeping the edges of the glass closely applied to the skin by covering it with the hand, for the purpose of keeping it in position, as well as of assisting the evaporation of the chloroform. This may be done from five to ten minutes, according to the amount of irritation wished for.

The patient during this time will complain of the gradual increase of a burning sensation (not so severe as that produced by a mustard sinapism), which reaches its height in five minutes, and then abates, but does not entirely disappear for more than ten minutes.

To insure the full operation of the remedy, it is necessary that the watch-glass be rather concave, that it be closely applied to the skin, and that the hand applied over it be sensibly warm. The immediate effect of the application is to remove all local pain in neuralgia, and relieve that of rheumatism.

Its effects on the skin are at first a reddening of the cutis, which in some cases is followed by desquamation of the cuticle; but this depends on the part to which it is applied, and also upon the susceptibility of the individual. In some cases, if the application has been prolonged, a dark brown stain remains even for a week or ten days, the same effect as sometimes follows the use of a mustard sinapism.

In Singapore I have used chloroform after this fashion in various neuralgias of the face, in inflammations of the eye and ear, in one case of angina pectoris, in several cases of neuralgia affecting the abdominal parietes, in lumbago, dysmenorrhœa, and in pain attending congestion of the ovary, etc.

Personally, I can testify to its great efficacy in two severe attacks of rheumatic inflammation of the eyes, in which the pain came on periodically about 3 A. M., with such severity that I thought the loss of sight itself would be preferable to its continuance. All other remedies, such as blisters, leeches, opium externally and internally, belladonna, etc., were of no avail in soothing the pain; water almost boiling applied by a sponge giving only a little relief. I then thought of this use of chloroform, remembering how much it had benefited my patients in other similar affections. The first night, the application of it to the temple relieved the pain in ten minutes; on its return the next night, the application again relieved it; and four times only was it required to remove completely the local pain; allowing, in the meantime, constitutional remedies to produce their effect. Since my return to this country I have recommended this remedy on several occasions to persons suffering from neuralgia of the face and head, and always with the same good effects as in India; and the other evening one of my domestics was quickly and effectually relived by it of a painful spasmodic contraction of the platysma myoides muscle, which prevented her raising her head from her chest. The chloroform was applied as directed, with immediate benefit, and next morning she was quite well, though in previous attacks several days elapsed before relief was obtained. I have mentioned this method to several medical men of this city, who have found it of great benefit; and that it may be more extensively known, is my reason for now bringing it before the profession.—*Edinburgh Med. Journal*, April, 1860.

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5. *Cypress as a Remedy for Bruises.*—Dr. Little states that during his long sojourn in the East, he had many opportunities of testing the efficacy of native medicines, one of which he thinks worthy of notice, and of being ranked as a household remedy.

It is to the Chinese that he is indebted for the knowledge of the use of this plant—the *Cupressus Chinensis*. In severe bruises they use it both internally

and externally. The latter method of applying it Dr. C. recommends to the profession as an excellent remedial agent in bruises and contusions; and, if applied in time, it will prevent tumefaction and discoloration of the skin, and, sooner than any other application, restore the bruised tissues to a healthy condition.

"The manner of using it is to bruise the young shoots into a paste with proof spirit or brandy, and then to apply it to the injured part. I have tried it extensively in the East with invariable success, when used immediately after the receipt of the injury; and in the case of one of my children I had an opportunity of applying it in this country, and with the same good result. I have only used the *Cupressus Chinensis*, or Chinese arbor vitæ shrub, for this purpose, but have no doubt other species, as the *C. Occidentalis*, or American Cypress, and the *C. Sempervirens*, would answer equally well; and as these plants grow in almost every shrubbery, the remedy is generally at hand."—*Ibid.*

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

6. *Treatment of Phthisis by Cod-liver Oil and Uva Ursi.*—Dr. HENRY KENNEDY, in a communication to the Surgical Society of Ireland (March 10th, 1860), spoke very highly of the power of cod-liver oil in phthisis. He said that of all the means at our disposal there is no single remedy which approaches it in efficacy. "I have never seen," he states, "the pulse fall, the strength improve, the flesh increase, and the perspirations cease, from any other cause than the fish oil—I mean when phthisis is once established. Before that period, change of air and scene will do much; but after it, I must repeat that the remedy appears to me quite secondary to the use of the oil: not that one should be used to the exclusion of the other, but that each should be estimated at its just value.

"Whilst, however, I thus speak in favour of the oil, I would not, for a moment, put it forward as a panacea. It will, I know, often disappoint the practitioner. Nor is it to be expected that either it or any other remedy should be of universal application. There are some few points, however, connected with its use, which appear to me to require more consideration than, as far as I know, they have yet received, and by attention to which the oil may be given with better effect, and more generally than is even now done. To these points, then, I would at present direct attention.

"I would begin by observing that in many phthisical cases it is necessary to prepare the patient for the oil. Simple and obvious as this rule appears, I have reasons for knowing that it is often neglected, and you may constantly hear cases spoken of where the oil is said not to have agreed, and to have been in consequence given up. Now I know as a matter of fact, that in the greater number of these cases a very little management would have enabled the patient to have taken the oil, and, in a medicine of such value, this is no trivial point to gain. But, it will be asked here, what preparation is necessary? and, speaking generally, the answer is, to avoid giving the oil when anything of real inflammatory action is present. All who are in the habit of watching phthisical patients must have observed the great tendency which exists to inflammatory attacks. Indeed, during the whole progress of a very large number of these cases, a kind of low inflammatory action is present, which is, however, very liable at times to become aggravated, and fits even of a mild kind of fever are by no means unfrequent. Now, under such circumstances, the fever must be lowered, and any inflammatory action lessened, before the oil is begun; and I believe there is no better plan of accomplishing this than by the use, for a few days, of some one of the salts of potash. I have not been able to satisfy myself as to the comparative value of these salts, but the bicarbonate, either in effervescence or plain, or the simple nitrate, will answer every purpose. In some cases, and, I would add, more generally than might at first sight be imagined, even small

doses of tartar emetic prove of very great service. It does not seem to be commonly known that this last medicine was long since specially recommended as a cure for phthisis, but it was at a period before the use of the stethoscope had made the diagnosis of the disease as certain as it now is. It is going too far, however, to put it forward as a cure for phthisis; but, under the circumstances I am now speaking of, and in cases which are suited for it, it gives valuable assistance, as probably many present are quite aware. In other instances, again, potash may be combined with the oil itself, as in the form of the liquor potassæ, of which one or two drachms—not more—may be added to half a pint of the oil.[1]

"By some one, then, of these means, modified according to the demands of each case, and carried out for a period varying from three to eight days, patients can be prepared, so to speak, for the administration of the oil, and many will be found to bear it now who previously would not have done so.

"But when we come to give it I have found it useful to administer it with two distinct objects in view, and, for want of better terms, I must call these, 1st, the alterative plan, and 2d, the fattening plan. The demands of each particular case will, of course, guide us as to which plan we shall pursue. If the disease be in the early stage, and the loss of flesh little or none, but above all, if there be but little expectoration, the alterative plan will be employed. By alterative I mean here one or two drachms of the oil for an adult in the course of the day. If the effects of such doses be slow, the usual chronicity of the disease and its great obstinacy are never to be forgotten; and, paradoxical as it may appear, a slow recovery is, in my experience, more to be desired than a more rapid one, the latter being very liable to relapse. That such doses as are now spoken of are capable of producing good effects, there can be no doubt, and they have the great advantage of not producing in any way untoward effects. That they will change the constitution from a state in which tubercles would be certain to be engendered, I myself cannot question. Even cases where I had reason to suppose tubercular deposit had occurred have got well; but on such a point as this I would speak with great caution, believing, as I do, that it is not in the nature of things but that the diagnosis may have erred.

"I have called this way of giving the oil the alterative plan, and it appears entitled to this, for it seems to act precisely as other medicines of this class do, such as mercury in small doses, the preparations of iodine, sarsaparilla, &c.; and should the patient fatten on it, it is only as it were indirectly, and after a considerable interval.

"On the second and more usual way of giving the oil, that is, from one to three ounces in the day, I have little to say, except that, like others, I have had opportunities of witnessing its good effects, even when the physical signs of tubercular disease were unequivocal. In these cases the signs of local disease all lessened, and, what was but too plain at one period, became subsequently much less so, whilst with this there was a corresponding improvement in all the constitutional symptoms. But I have seen no instance where the signs of local disease—I mean after tubercles had softened—have entirely disappeared. Amongst my notes I find one instance where, after pneumothorax had occurred, life was prolonged for many weeks by the use of the oil. That the oil in large doses is an agent which often fattens the patient, and renews the health and strength, I presume few will now deny, and I must repeat that in my own hands it has shown itself far superior to any other single agent, including change of air.

"Whilst using it in the large doses, however, there are one or two points which require attention. It has occurred to me to see some cases where the system appeared to get saturated with the oil, just as we know occurs with other medicines. The patients got out of sorts, the stomach did not retain the oil as well as it had previously done, the tongue became somewhat furred, and the pulse of a fuller character than it had been; in fact, a state of feverishness had been induced, and, as it appears to me, due directly to the effects of the oil. Under these circumstances, it is always necessary to omit the medicine for some days, and, when resuming it, to begin with smaller doses. The occurrence

[1] In cold weather even this quantity is too much.

of the state of system alluded to may, however, be looked on favourably, as it indicates a power over the constitution which it were desirable to retain.[1]

"One other point whilst administering the oil in phthisical cases I would notice, though aware it has been observed by all present; I mean the fact that, in very many cases, and after a use of the medicine more or less prolonged, the disease comes to a stand as it were, or it may be the patient even begins to fall back. When the oil is first ordered the improvement is most marked, but a time comes when the good effects cease. Under these circumstances I was led, a considerable time back, to try some other remedies, which might take the place of the oil for a time, and was naturally directed to those which had been put forward as cures for phthisis, and which appeared to myself capable of at least affording relief.

"This is not the place to enter into a discussion on a principle, as I may call it, in the treatment of chronic diseases, which seems to me worthy of much more attention than it has yet received; I mean a change of remedies, having an express object in view. In practical medicine, from the difficulties surrounding the subject, we are often compelled to change our remedies. This arises from the great uncertainty of their action. But every one hearing me will understand the difference between a medicine which has failed to do good at all, and one which has ceased to do good after having done some. There is certainty in the one case, but none in the other; and though we have to change our remedies in both, it is yet done with a different intention in each. In the one we might resume what has formerly done good, in the other we would not think of it. Now, what occurs in phthisis is precisely a case in point. I have stated that whilst using the fish oil it was by no means uncommon to find it ceasing to benefit the patient. When this occurred, as it did again and again, I made trial of different remedies, of which hemlock, digitalis, and sarsaparilla may be mentioned. I think I have seen some benefit arise from each of these; it is not, however, of them I am about to speak, but of another medicine which has appeared to me more useful than any other single remedy I have tried, excepting, of course, the fish oil. The medicine I speak of is the uva ursi, and to it I beg to call the attention of the Society, as I consider that I have now had a sufficient experience of it. Most are probably aware that uva ursi had been recommended some sixty years ago as a cure for phthisis. It seems, however, to have fallen into disuse, at least for this disease, and besides it was recommended at a period when the diagnosis of chest affections did not approach the certainty which has since been attained. I would, therefore, again bring it forward, believing, as I do, that in some cases, to say the very least of it, it will be found a valuable adjunct to the other means for treating phthisis. In ordering it, I am in the habit of giving it in the form of powder, the dose ranging from five to fifteen grains, two or even three times a day. The form of powder has some objections; to a few the idea of any medicine as powder is disagreeable; but, on the other hand, it is much the most efficacious way of giving it, can be continued for months, and at a very trifling cost.

"Given as indicated, it has appeared to me to act, in a minor degree, as the fish oil itself. Thus, it improves the strength, lessens the expectoration and cough, and it seems to act peculiarly well in relieving the dyspnœa, which, you are aware, is so often a leading feature of the complaint. The pulse, too, I have distinctly found, in some instances, to come down under its use. In a word, it improves the patient's general state, and, in a disease like phthisis, I take this to be a step of no little consequence. But it will not cure the disease, nor would I for a moment put it forward as being more than an auxiliary to other means. It does, however, I must repeat, improve symptoms, which, except the fish oil, I have found no other remedy effect. How it acts I do not profess to say, but it is more than probable its action is exercised on the bronchial mucous membrane, as we know it is in diseases of the urinary mucous membrane, that its use has been so long established, and retained to the present day.

"When the fish oil seems to lose its effects, I have been in the habit of substi-

[1] In direct connection with this part of the subject, I may refer to a valuable paper brought before this Society a few years back by Dr. Benson.

tuting the uva ursi in its place; and, in this way, I believe more benefit is attained than in any other way, and after some time again the oil may be resumed as at first, and with good effect. In several instances I have given the two medicines conjointly, but at different times of the day." * * * *

"Thus, the oil has been ordered after breakfast, and the uva ursi towards evening. It has appeared to me in such cases that the improvement of the patients was unusually rapid, but they are as yet too few to enable me to form a definite opinion on the point. It is not by any means improbable, however, that the action of the uva ursi on the mucous membrane, especially of the stomach, may be such as to render the oil a more efficient agent than it even is at present. Should this opinion—and I see no reason to doubt it—turn out to be correct, an important step would be gained, for less oil would then be required, and our power over the fearful disease under consideration would be increased.

"Before concluding, the Society will allow me to put into a series of propositions the points to which their attention has been already drawn, and on which I should be glad to have their opinion.

"1. That in some cases of phthisis, treatment is essential preparatory to the use of the codfish oil.

"2. That this result is probably best attained by the use of some of the preparations of potash.

"3. That the fish oil may be given with two separate objects in view, 1st, as an alterative, and 2d, as a direct restorer of the flesh and strength; the amount of the dose being the cause of this difference.

"4. That the oil, in some instances, seems to saturate the system, under which circumstances, its use ought to be suspended.

"5. That in many cases, after a certain use of the oil, its good effects cease.

"6. That it is then advisable to substitute some other means.

"7. That amongst these the uva ursi is well worthy of a trial.

"8. That in some instances the use of the oil and uva ursi conjointly would appear to lead to the best results."—*Dublin Medical Press*, April 11, 1860.

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7. *Treatment of Phthisis by the Hypophosphites of Soda and of Lime.*—Dr. Richard Quain was induced by the representations of Dr. J. F. Churchill, relative to the value of the hypophosphites of soda and of lime in the treatment of phthisis, to administer these agents to twenty-two patients in the Brompton Hospital for Consumption. Two of these were in the first, two in the second, and ten in the third stage of phthisis. The dose given, was at first ten grains three times a day, and increased in some cases, to a drachm. One case was under treatment six months, one four months, six three months, nine two months, and five one month. "During this lengthened course of treatment," says Dr. Q., "I looked anxiously, but in vain, for those marked physiological effects described by Dr. Churchill. There were no evidences of the 'improved powers of innervation;' 'the hair and nails did not grow more rapidly;' there was no 'appearance of plethora or of fulness;' the patients did not describe 'an unaccustomed sensation of feeling better and stronger after a few doses of the remedy.' Nay, I would say that there was nothing more felt by the patient nor noticeable by the physician than if so many grains of carbonate of soda or prepared chalk had been taken."

Dr. Q. gives the following summary of the results of the treatment: "Of 22 individuals labouring under phthisis, submitted to the hypophosphite treatment, sixteen derived no benefit whatever; in three the benefit was so slight and temporary as scarcely to deserve notice; in two the improvement, though marked, was temporary; and in one case the result has been satisfactory and permanent. Small as the therapeutical powers of the hypophosphites are shown to be by these facts, are we justified in assigning to them even thus much? I think not. For we cannot forget that our cases are hospital cases; that, oppressed by sickness, care, and anxiety, they come from close, unhealthy localities; that they were more or less destitute of good food and good air. When they enter the hospital, they begin to feel the influence of hope; they live in warm, airy, and well-ventilated wards, find agreeable occupations, and have plenty of good food. Under such circumstances, the patients frequently improve in health, without

the application of any medicinal agents. It would, therefore, be as fair to attribute the slight or temporary improvement which took place in some of these cases to hygienic as to the therapeutical agencies. Nay, further: this opinion is confirmed by the fact that two of the three cases which did best in the hospital ceased to do well when they left it.

"Desirous of otherwise testing the value of these substances, I thought it would be well to compare the results of my ordinary hospital practice with that of the hypophosphite treatment. With this view, I requested my friend and late clinical assistant, Dr. Hill (to whom I am indebted for much assistance in this inquiry, and for the notes of the preceding cases), to make abstracts of any 22 successive cases in the hospital books. He did so, and having ascertained the results of the treatment in these cases, I find that he has given me notes of 11 males and 11 females, of whom 3 were in the first stage of the disease, 5 were in the second, and 14 in the third. It will be remembered that 12 were in the first and second stage, and 10 in the third. Thus in the former cases, the advantage was in favour of the hypophosphite cases, so far as the stages of the disease were concerned; nevertheless we find that of the cases submitted to other treatment, 16 were more or less materially or permanently benefited, whilst in 6 only did the disease progress unfavourably. Exactly the converse was the case when the hypophosphites were given. Thus there were 16 of 22 cases unrelieved. This comparative evidence is further strengthened by bearing in mind that 6 of the cases in the former series, which were unrelieved by hypophosphite treatment, did well subsequently under other treatment.

"A review of the preceding facts has led me to form a most unfavourable opinion of the value of hypophosphites in the treatment of phthisis. I believe them to be comparatively, if not absolutely, useless. I have been induced to take some little pains in investigating the subject, because of the unhesitating confidence with which their value is asserted and their use recommended in certain quarters, and I have also seen in the cases of some patients who have visited Paris how much time has been thrown away by substituting the use of these salts for remedies of undoubted efficacy in controlling the progress of phthisis."—*Lancet*, March 17th, 1860.

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8. *Rheumatism treated by the Hypodermic Injection of Atropia.*—Dr. COWDELL, of the Dorset County Hospital, reports (*Med. Times and Gaz.*, March 17, 1860) five cases as evidences of the great practical value of the hypodermic injection of atropia in sciatica, lumbago, and, in fact, all external aches and pains! Dr. Wood's morphia injection, Dr. C. says, has been practised on several patients without the results now obtained from the use of atropia. The morphia procured sleep in from three to ten minutes, but when the narcotic effect had passed off, the pain returned as bad as before. The atropia causes slight drowsiness, dryness of the throat, and dilatation of the pupil: the only symptom of moment being the disappearance of the pain. The sulphate of atropia being more soluble than the alkaloid itself, is preferred; the strength of the solution is gr. ij to ℥j of water. The instrument employed is an ordinary nævus injecting syringe, consisting of a graduated tube with screw piston, and a hollow needle which screws on to the tube. The needle is thrust under the skin as near the seat of the pain as possible, and from ten to thirty minims of the solution gradually injected.

We quote one of Dr. C.'s cases—

CASE.—S. E., aged 20, a domestic servant, admitted September 29, 1859, and stated as follows: "Had an attack of acute rheumatism five months since, was delirious at intervals during three weeks, and, when recovering from the rheumatism, sixteen weeks ago, had an acute pain in the hip, which did not yield to the leeches or blister which were repeatedly applied." On admission she was extremely anæmic, and experienced acute pain in the region of the sciatic nerve, increased by pressure. There was no hip affection; contour of hip normal; muscles very flabby; hamstrings contracted; knee bent; and the foot drawn up. She had, during the whole time, been unable to walk without crutches. Ordered meat diet. Ol. morrhuæ and a draught containing iodide of potassium.

30*th*. Passed last night as usual, without sleep, and in agonies of pain. Injice sol. atropiæ sulph. ♏xxx in par. dolent.

October 1. Slept well all night; felt immediate relief after the injection; says she has not had so good a night for sixteen weeks.

4*th*. Hip is sore, but no pain unless pressed. Repet. inject. horâ somni.

5*th*. The pain is entirely gone, not even the soreness remaining. Omit. mist. R.—Ferri. am. cit. gr. iv, ex aq. ter die.

She was treated for anæmia from this date to November 10, when the report runs thus:—

"*November* 10. Patient has had no pain in the hip since the last injection on October 4. Two injections only were employed, at an interval of three days, the first of which gave immediate relief, the second removed pain and soreness altogether. Can walk with ease; no pain on pressure over the nerve, and she gains flesh rapidly. Discharged well."

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9. *Successful Treatment of Hooping-Cough, by increasing Doses of Sulphate of Zinc and Extract of Belladonna.*—Dr. Fuller read a paper on this subject before the Harveian Society of London (April 19, 1860). He commenced by calling attention to the commonly-received opinion, as stated in most books on the subject, that "hooping-cough must run a certain course." He combatted this opinion by reference to the results of his own experience, and then proceeded to point out the causes which had led to its general adoption. Among these he mentioned the inefficiency of the treatment ordinarily employed, and the neglect of all measures likely to subdue the tendency to spasm on which the continuance of the whoop depends. Dr. Fuller regarded the complaint as consisting essentially of bronchitic irritation, usually not very severe, accompanied by reflex spasm of the air-passages, and expressed his opinion that in most cases the spasmodic symptoms are those which demand our most serious attention. Not only is the spasm a most painful symptom, but it is one which may give rise to life-long mischief. His object, therefore, had always been to subdue the spasm as speedily as possible, and the practice which, until the last twelve months, he had found most successful for the purpose, was the administration of sulphate of zinc in rapidly increasing doses. Dr. Fuller then referred to the discovery he had made as to the tolerance of belladonna by children, which is recorded in a paper published in the last volume of the *Medico-Chirurgical Transactions*, and he briefly stated the facts which are there detailed *in extenso*, as to the amount of belladonna which may be given with safety, and the conditions which should be observed in its administration. The conditions he specified were, first, that the remedy should be given at least four times daily, and should be administered at first in small doses, which may be increased day by day or on alternate days, by a corresponding amount. He pointed out that mere dilatation of the pupil need not be regarded as a bar to its administration, and stated that if the precautions just referred to are observed, the daily dose of the extract of belladonna may be safely increased up to a scruple or half a drachm without the production of any unpleasant symptoms. He then proceeded to state that he had brought these facts to bear on the treatment of hooping-cough, and from the conjoint use of sulphate of zinc and extract of belladonna, in rapidly increasing doses, had obtained results exceeding his most sanguine expectations. Rarely had he found the whoop to last above twenty-one days, and in some instances it had subsided in ten days. The mode in which Dr. Fuller proceeds is to give the zinc and belladonna as soon as the whoop declares itself. If the attack is accompanied by much febrile excitement, and bronchitic irritation, he prescribes a cough-drop containing a drachm of antimonial wine and a drachm of ipecacuanha wine to two ounces of water, and, if necessary, applies a blister to the chest. Of the cough-drop, a larger or smaller amount is given according to circumstances. In all cases, however, the zinc and belladonna are perseveringly administered. To children under three years of age he usually begins by giving one-sixth of a grain of extract of belladonna, and half a grain of sulphate of zinc four times daily; and to children above that age one-quarter of a grain of extract of belladonna and a grain of sulphate of zinc. These remedies are given in solution in water, and the dose of each substance is increased by a cor-

responding dose daily, or on alternate days; so that the child who began by taking one-quarter of a grain of the extract and one grain of zinc at a dose, would be taking one grain of the extract and four grains of the zinc at a dose, either on the fourth, the sixth, or the eighth day, according to the rapidity with which the dose is increased. Dr. Fuller concluded by citing cases illustrative of the value of this treatment; assured the members of its safety, and urged its general adoption.

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10. *Nitrate of Silver in Diphtheria.* By Dr. HAUNER.—Seeing the difference of opinion which prevails as to the efficacy of this remedy, it is of importance to exactly determine what cases are suited for its application, how far it operates alone or in consequence of its being combined with other remedies, and what is the best manner of employing it. It is only by the exact observations of numerous well-marked cases that these points are to be elucidated.

During fourteen months of 1857–8, scarlatina, pertussis, and measles prevailed greatly in Munich, where the author practises, and a very large number of children became the subjects of one of these diseases, very many of two of them, and some of all three. The scarlatina, as a general rule, was very mild, few children dying; the pertussis gave rise, owing to the tediousness of its catarrhal stage, to emaciation, but during its convulsive period it proved very amenable to remedies; while the course which the measles pursued was by no means so simple. There was no unusual mortality from bronchial or pneumonic inflammation; but the eruption in many cases, in its colour and its course, assumed the form of what is by some termed typhoid or putrid measles. The fever was very persistent, the paroxysms of cough were excessively violent, and the inflammation of the mucous membrane of the fauces, larynx, and bronchi was often intense. The patients were very slow in recovering, long remaining feeble, especially such of them as had already been attacked by scarlatina or pertussis. During the prevalence of these exanthemata, a diphtheritic condition of the mouth and throat was occasionally met with; but this readily yielded to *aqua oxymuriatica*, chlorate of potash, and slight cauterizations; and it was not until after the cessation of the exanthematous diseases that the diphtheritis broke out as an epidemic. The author's views on this disease already formed were amply confirmed by the observations of the present epidemic; and he considers that the following positions may be laid down with complete certainty: 1. Diphtheritis only attacks children who are debilitated from former disease, that usually being of an exanthematous character. 2. It is contagious, and may be conveyed from diseased to hitherto healthy children. 3. Death may be produced through intoxication or pyæmia, through exhaustion, or through the local extension of the disease to the larynx, bronchi, and lungs. 4. The treatment should consist in the prompt arrest of the progress of the disease towards organs dangerous to be affected, and the administration of internal roborants. 5. The antiphlogistic treatment is directly injurious.

In the present epidemic 82 cases came under the author's notice, 46 suffering from diphtheritis faucium et oris, 8 from angina diphth. gangrænosa, 6 from ozæna diphtheritica, 10 from laryngitis diphth., 5 from diphth. vaginæ, and 7 from diphth. cutanea. Exact inquiries ascertained that of these 82 patients 39 had suffered from measles, 15 from scarlatina, 19 from pertussis, and 7 from all three of these within the space of fifteen months. In 7 instances the children had been healthy until brought into immediate contact with those suffering from diphtheritis. With respect to age, only 8 of the children were less than one year old, the ages of from two to eight being those of the bulk of the cases. The sexes were nearly equal. Although in some of these cases the children were surrounded by the best sanitary conditions, the majority, whether as regarded diet, residence, and care, were not so provided for. Of the 82 children, 6 died—2 from laryngitis and diphtheritic bronchitis, 1 from cutaneous diphtheritis (a post-mortem, which might have discovered internal lesions, being prohibited), 1 from pyæmia coming on during gangrene of the cheek, and 2 from atrophy after the diphtheritic process had ceased.

While the primary cause of the origin of a diphtheritis must be looked for in the preceding occurrence of another disease, it is not to be doubted that the

careful treatment of a child so affected, with good food and nursing, healthy dwelling-place, etc., may prevent the outbreak of the diphtheritis, and its spreading by contagion can be entirely hindered. Sporadic cases, which often come under observation, are not of the same importance as during the prevalence of an epidemic.

In all the cases during this epidemic the nitrate of silver was employed. The diphtheritic deposits of the mouth and throat were immediately well pencilled, and especially was the nitrate applied to and beyond the cutaneous deposits. Instead of the solid nitrate, a solution of from twenty to thirty grains to the ounce was also employed sometimes; and the author believes that the having prompt recourse to this local application, accompanying it by internal strengthening means, prevented the propagation of the pseudo-membranes to more important organs. Of the internal means, good meat-broth (Liebig's extract of flesh), coffee, beer, wine, etc., together with quinine and the chlorate of potash, were those chiefly had recourse to. Sometimes, at the commencement of the affection, an emetic of ipecacuanha and oxymel of squill was given with evident advantage. Baths were also employed, and the greatest cleanliness observed in the administration of food, etc.; while the fauces were frequently examined, all new deposits being removed and the caustic reapplied. In no instance did a case of the author's so treated pass into diphtheritic croup. The ten cases of diphtheritic laryngitis were treated by application of the nitrate to the larynx, and all but two recovered. In six of the cases which recovered the most unfavourable prognosis had been delivered. In three of the cases the cauterization was repeated five times in the twenty-four hours; in two, four times; and in one, only twice; in four cases it was performed by Green's mode of applying the pencil, and in two by blowing in the powdered nitrate. Not only did the nitrate excite powerful cough and vomiting, whereby strips of false membranes were expelled, but after a few hours the breathing became easier and deeper, and the circulation more equalized. Sanguine as are the author's expectations of the benefits to be derived from the nitrate in diphtheritic croup, he yet believes that there are cases in which its most skilful application will fail to be of service; but still he maintains that there is no other remedy which produces so rapid, certain, and unmistakable effects. Even after laryngotomy in this disease, the nitrate is still almost indispensable for the completion of the cure. After its employment, he finds it best to keep the parts surrounded by a moist heat, to which end compresses wrung out in water are kept around the neck, or cataplasms are applied in vaginal or cutaneous diphtheritis. The loss of substance under such applications is more quickly supplied, granulation and cicatrization taking place much more rapidly. Above all things, the author cautions practitioners against adopting active antiphlogistic treatment in epidemic diphtheritis, affecting children, as it generally does, already enfeebled by prior disease.—*Med. Times and Gaz.*, March 10, from *Froriep's Notizen*, 1859, Bd. II., No. 21.

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11. *On the Comparative Results of the Treatment of Croup by Tracheotomy and by Medication, during the years* 1854–58.—Dr. Barthez, in a letter addressed to Dr. Rilliet, inquires into the causes which may account for the varying results obtained by the medical and surgical treatment of croup. He seeks to determine the conditions which in each case influenced these results, so as to arrive at a safe basis upon which to decide upon the value of tracheotomy. During the first year after the Hôpital St. Eugénie was opened, 13 cases were submitted to tracheotomy. The first died during the operation, and successively eleven others died after operation; it was not till the thirteenth that a cure was obtained. On the other hand, four patients who were not operated upon recovered. The fatality of the operative proceedings now induced Dr. Barthez to be more sparing of the knife; but still the ensuing year brought a great fatality —of 18 patients only four recovered. Two had been tracheotomized. But at this period French physicians began to distinguish between simple and infectious croup or diphtheria, and Dr. Barthez arrived at the conclusion that the disease (croup and diphtheria being employed synonymously) was the result of an intoxication giving rise to two forms of morbid action—the one local, pseudo-membranous; the other general or infectious. The author now considered the

operation inadmissible in the form that was primarily malignant, on account of its rapid progress; while he held that it should be done where the disease was slow in its progress, and, although severe, only induced asphyxia slowly. The asphyxia ought to be combated by operation, whatever the previous health of the child. At this time he laid down the following rules: 1. To try internal remedies, which had been most successful; 2. To perform tracheotomy at an advanced period, when the former method had evidently failed; 3. To operate also, however unfavourable the age and prior health of the patient, if there were evidence of impending asphyxia.

This method was not followed by great success during 1856, for among 18 cases there were only four recoveries, of which three had been tracheotomized. During 1857, however, the author's views appeared justified by his results, for among 33 cases (*croups*) there were nine cures, seven of which were without operation. Two of these were fortunate enough to have been brought out for operation, but to have been sent back for a further trial of internal treatment. Of 23 who were operated upon but two recovered; however, the author expresses himself well satisfied with this result (*je le trouvai très beau*), for the two patients were snatched from certain death by the operation. The general results obtained during the course of 1858 were as follows: Total number operated upon, 124, with a mortality of 106, or 1 recovery in 6.9; total number not operated upon, 62, with a mortality of 26, or 1 recovery in 2.4. With regard to the character of the disease during this year, the author remarks that it presented successively all the forms of diphtheria; the recoveries accumulated at certain periods, while at others the number of deaths was terrible. From the 1st of January to the 3d of June the non-infectious form, accompanied by slow and feeble intoxication, prevailed. The false membranes descended to the small bronchi; tracheotomy, which was almost invariably performed, scarcely yielded one recovery in 6 or 7 cases; and the recoveries nearly all took place in February. During June the epidemic almost ceased, to recover its virulence towards the end of July. During August it was so severe that of 12 children none recovered by the operation. In September and October there were four recoveries among 14 patients; then, after a respite of a few days, the epidemic appears more severe than ever, and with great efforts but one cure is achieved among 14 patients.

The author concludes from the preceding facts that it is not the treatment which determines the results, but that we must seek for the causes of the variations observed regarding them in the varying forms of the epidemic.

Although Dr. Barthez regards the two varieties of diphtheria as "the expression of the same affection," which often renders it "difficult to establish a distinction at the bedside," he considers it necessary to make the distinction, because the results of the treatment are so different, according as the diphtheria is local or general. In a subsequent part of the paper, though admitting the doubtfulness of the statistics, he states that of 55 patients in whom the disease put on the general type, only 7 recovered, or about 1 in 8; while of 64 patients where the disease was of the local character, 27 recovered, or 1 in 2.3.

The following are the characters which Dr. Barthez regards as distinctive of the two forms of the disease:—

1. When the false membranes extend in a continuous layer over the palate, uvula, tonsils, so as to spread into the respiratory passages, he considers generalization of the disease certain; and still more so if the nasal fossæ are attacked. On the other hand, the absence of coryza, the limitation of the false membranes—*i. e.*, their exclusive formation in the larynx, or their slight extension to the tonsils only, are the features which appear to indicate the absence of general intoxication.

2. The gray, grayish-black colour, the gangrenous appearance of the false membranes visible on direct inspection, the discharge of a blackish liquid and ichorous blood on the slightest touch of the throat, are certain signs of intoxication; while the gray-yellow, and above all the white tint, of the false membrane indicates local disease.

Diphtheritic intoxication is further characterized by marked tumefaction of the cervical ganglia of a painful character, especially if accompanied by swelling

of the adjoining cellular tissue; by the production of false membranes on the skin when deprived of its epidermis, and on wounds; by gangrene of the mucous membranes of the skin or of wounds; by abundant albuminuria, which is independent of all other causes which may produce it (upon this symptom the author was "imperfectly informed" up to the end of 1858); by the leaden, and not purple, hue; the smallness and feebleness of the pulse; the exhaustion apart from the asphyxia, or out of proportion to the apparent asphyxia. Finally, diphtheritic intoxication is characterized by consecutive paralysis, either limited to the pharynx or general.—*Brit. and For. Med.-Chir. Rev.*, April, 1860, from *Gazette Hebdom.*, Dec. 2, 1859.

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12. *Bloodletting in Disease.*—Dr. Markham read a paper on this subject before the Western Medical and Surgical Society (March 2d, 1860). The author, apologizing for the triteness of the subject, drew a complete distinction between the effects of local detraction of blood from an inflamed part, and the effects of venesection upon it. Local abstraction of blood, as by leeches applied to an inflamed joint, generally reduces the chief characteristics of the inflammation, the pain, the heat, the redness, and swelling; but venesection has no such influence over those inflamed parts, nor any influence at all except such as is always manifested when large quantities of blood are taken. Now, if these facts be true of external inflammation, he argues they must, by strict analogy, be true of internal inflammations, and therefore local abstraction of blood is useful in all those cases of internal inflammation in which there is a distinct vascular connection between the skin and the inflamed part beneath it, as, for instance, in pleurisy and peritonitis. He contends, however, from what we see of its action in external inflammation it has no beneficial influence over internal inflammations. How comes it, then, that the wisest of our profession have in all ages deemed the remedy so useful a one in all such internal inflammations? Are we to believe they have all been mistaken? The author answers these questions in a decided negative, and thus solves the difficulty. He calls attention to the fact that the chief (and only) battle-field in which the bloodletting controversy has been ever fought is pneumonia. This, then, is the disease in which the benefits of bleeding must have been most beneficially exemplified, and the practice may have been right, though the theory may have been wrong. Men thought the bleeding had a directly beneficial influence over the progress of the local inflammation in the lung, but it was not so; it simply relieved the pulmonary and the cardiac congestion, which necessarily arises in a greater or less degree, as a complication of pneumonia. This is the only relief it gives; it frees the partially-arrested pulmonary and cardiac circulation, and gives intense relief. Its benefits, therefore, are great and immediate, and its dangers all lie in the future. The greater the extent of the inflammation, the greater the asphyxiating congestion, and the more urgent the necessity for venesection; but, unfortunately also, the greater is the danger of the practice. Recollect, the lungs are the chief blood-making organs of the body, and this all-important function is arrested in proportion to the extent of the inflammation. The loss of blood is, therefore, under such circumstances, an irreparable loss. He ridicules the fear which many have of large losses of blood, and asserts that the body will lose such with impunity, provided the lungs remain unaffected by disease, *i. e.*, so long as the lungs can make fresh blood from the food and wear and tear of the tissues. As a striking proof of this fact, he instanced the large hemorrhages borne by women in childbed, and by fever patients with abdominal symptoms. As a corollary of his views of the indirect uses of venesection, it follows that it is an excellent remedy in all those diseases, whatever their nature, which occasion a congestive condition of heart and lungs, as in pneumonia; and he instanced diseases of the heart, peritonitis, and injuries of the head, as cases in which this condition of the pulmonary circulation obtains, and which require venesection. He concluded by stating, that if his views of the effects of venesection are accepted, viz., that it has no beneficial influence over the inflammation *per se*, but only in those cases in which pulmonary and cardiac congestion arise, it must follow that a very different signification from that generally adopted must be attached to the remedy. It also follows, he thinks, that the remedy is

now-a-days much less frequently resorted to than sane therapeutics require. The change-of-type-of-disease theory in no way affects the position he here assumes as to the uses of bleeding. Whether that theory be true or false, the action of bleeding in disease, be it good or be it bad, must be physiologically the same. That theory can only affect the necessity or otherwise of our resorting to the remedy in given cases: it cannot alter its mode of action. He, therefore, thinks the discussion unnecessary.—*Med. Times and Gaz.*, March 31, 1860.

13. *Clinical Experience in Pneumonia.*—Dr. GAIRDNER states (*Edinburgh Med. Journal*, March, 1860) that, while acting as pathologist to the Edinburgh Royal Infirmary from 1848 to 1853, he had become convinced that the tendency to death of many inflammatory diseases, and, in particular, of inflammation of the lungs and pleura, when uncomplicated, was very much overrated. This he inferred from the rare occurrence of deaths due to pneumonia and pleurisy (and also to pericarditis, peritonitis, and acute meningitis), apart from those organic diseases or surgical accidents, which might be said naturally to terminate in one or other of these acute affections. He also inferred, from his experience as pathologist, that this tendency of inflammations to a favourable result was on the increase; or rather, that, in proportion as we were getting rid of the severe forms of epidemic disease (fever, dysentery, scurvy, influenza), which had deteriorated the health of the population previously to 1848, we were also getting rid of the more severe and unmanageable types of acute inflammation; especially the inflammations of the serous membranes of the chest and abdomen, which he had seen in fearful activity during a few months of the year 1847, and pneumonia, which, within his own experience as a student, had been a much more fatal disease in hospital practice than it ever became after 1848.

Into the causes of this favourable change, he does not propose at present minutely to inquire, although the inquiry is one of great importance. He believes, however, that the acute inflammations are quite as much, or very nearly as much, within the domain of the sanitary reformer as the more obviously epidemic fevers; and further, that some even of the chronic organic diseases have already yielded, and may be expected still further to yield, to the improved habits, the better clothing, the greater abundance of food, and the diminished destitution of the population generally. Looking back over thirteen years of almost continuous hospital experience, he feels assured that chronic affections of the kidney and liver, and perhaps also of the heart, have diminished in frequency, as causes of death, to a most material extent.

In his paper, Dr. Gairdner proposes to illustrate the actual state of the case as regards pneumonia, or rather pleuro-pneumonia, by submitting a brief report of the mortality in his wards, in so far as it bears on this disease, during five complete years ending in December, 1859. There is only one way of doing this so as not to mislead; viz., to give an account of all the deaths, whether directly from pneumonia or not, in which decided pneumonia formed part of the disease existing at the time of death. He enters a caution against using the data as statistics of death and cure, to be set against other statistics of death and cure, possibly founded on a different estimate of pneumonia; and against arguing from these data as confirmatory of any special principle of treatment in pneumonia, inasmuch as his treatment has not been at any time founded on special or peculiar principles, but simply on the watchful adaptation of means to ends in the individual case.

For several years before 1855, while Dr. Gairdner was occupied as assistant-physician and junior acting physician to the Infirmary, the cases under his personal care were, to a disproportionate extent, instances of chronic disease, and were limited to the male sex. Since that period, owing to arrangements among the ordinary physicians with regard to clinical teaching, he has never had under his care fewer than fifty beds fairly divided between male and female patients; all the male, and by much the greater proportion of female beds having been devoted to ordinary miscellaneous cases, most of them severe and urgent; and the succession of these having been, as a rule, rapid and varied.

The following is his entire personal experience of fatal acute inflammation of

the lungs, whether simple or complicated, during the five years from 1855 to the end of 1859.

In 1855, the only case of this kind that occurred to him was one of double pleurisy, with pyæmic abscesses in the lung, from a fish-bone imbedded in the cellular tissue behind the œsophagus. In 1856, there were three fatal cases of pulmonary inflammation; all, however, evidently secondary to grave disorders, sufficient of themselves to compromise life, and of older standing than the pneumonic affection. One of these patients, aged 40, was said to have been an epileptic; he had fallen (it was said) during a fit, and had injured his head; he lived for eight days with all the signs of compression of the brain, and was afterwards found (as was suspected before death) to have fractured the skull in the lateral regions and at the base. The pneumonia in this case presented hardly any symptoms. In another case, aged 43, there was severe maniacal delirium tremens, which was afterwards discovered to be complicated with fracture of the first rib, diffused abscess around the seat of the fracture, suppuration of the shoulder-joint, and pyæmia. This case is noticed in the *Edinburgh Medical Journal* for August 1856, p. 129. The third case was one of broncho-pneumonia supervening on Bright's disease of the kidney.

In 1857, there were two fatal cases of pneumonia, both secondary to chronic organic disease. The first was only two days in hospital. He was an intemperate man, the subject of Bright's disease, and, as was afterwards found, of fatty liver in a high degree. He was admitted on January 1st, far gone in double pneumonia, and with intense albuminuria and renal desquamation. He died on the 3d. The other case was that of a man, aged 39, subject to aggravated chronic bronchitis and emphysema for nearly a year before his death, which occurred from the complication of these disorders with a rather chronic condensation of the lower lobe of the left lung.

In 1858, there were two cases of pulmonary inflammation under treatment, and ending in death. One, in a woman, aged 39, was complicated with Bright's disease of the kidney, in an advanced stage. The other, a man, aged 30, was a case of emphysema and bronchitis of old standing, on which pneumonia had supervened about a week before admission. A child, also, of 15 months, apparently of feeble organization from birth, was brought to Dr. Gairdner evidently moribund. It died two hours after admission, and considerable inflammation of the lungs was found.

In 1859, Dr. Gairdner witnessed, within the space of a little more than a week, two more fatal cases of pneumonia, one of which only was complicated. Neither of these cases was under treatment more than forty-eight hours. The complicated case was one of severe and long-standing emphysema and bronchitis, with cardiac dilatation to a moderate degree, admitted *in extremis* on the 4th of June, and dying on the 5th of June. The other case was that of a man of excessively intemperate habits, admitted with absolutely complete hepatization of the upper lobe of the right lung, which was so much enlarged by inflammatory effusion as to cross the middle line of the sternum, and was already becoming disintegrated by suppuration, with the characteristic prune-juice expectoration in very large quantity. The patient had been ill only about a week, but was exceedingly exhausted on admission. The treatment was almost exclusively by stimulants; but he died on the second day after entering the hospital, and the ninth of the disease. There was no organic complication.

The preceding details show, that out of ten or eleven cases of inflammatory affections of the lungs, being absolutely the whole number that can be discovered after the most diligent search, in which acute pneumonia, or anything like acute pneumonia, occurred among all the cases terminating in death under Dr. Gairdner's care from 1855 to 1859, only *one* can fairly be said to be a death from idiopathic or uncomplicated pneumonia. In this one case the disease occurred in a man of excessively intemperate habits, and had gained ground so far before admission that the whole upper lobe of the right lung might be said to be in a state of destructive suppuration. Dr. Gairdner believes also, that in no one of these cases had anything approaching a rigidly antiphlogistic treatment been pursued, either before or after admission. Many of them, indeed, had been entirely neglected; but in such as had been seen by medical men before admission,

it had apparently never occurred to the medical man to use such treatment; and, in particular, not one of all these fatal cases was bled. The treatment in the hospital, so far as treatment was possible, consisted of diffusible stimulants and cough mixtures, with such food as could be taken, mild diuretics, and, in one or two, the extremely cautious use of antimony.

During the same period (1855–1859), Dr. Gairdner treated, on an average, from twelve to twenty cases of inflammatory disease of the lungs annually: or, in the aggregate, from 60 to 100 cases, including under the larger number a rather vague estimate of all kinds and varieties of disease in which acute or serious symptoms went along with the evidences of pulmonary condensation; and under the smaller, a rather restricted calculation of those cases which he regarded at the time as being genuine pneumonia. He has long been of opinion that not all cases attended with pulmonary condensation, and marked by acute symptoms, are pneumonia in the proper sense of the term; and he therefore leaves it to the reader to take either the larger or the smaller number, according to his own idea of what should be called pneumonia.

Dr. Gairdner does not advocate any one special system of treatment in pneumonia. He holds that what is to be treated is not so much *the pneumonia*, as the *individual patient*. Nevertheless, he thinks it right to state shortly the rules by which he has been guided in the administration of remedies. Among single drugs, antimony has been first on his list: the greater number of cases (not excluding some of those which appeared most debilitated), which were attended by marked fever and oppression, had it in one shape or another; commonly in the ordinary form of tartar emetic, in doses varying from one-twentieth of a grain to one grain every hour or two. He has given the antimony *always alone*, *i. e.*, with nothing to mask its physiological effects; and has always simply withdrawn it, or diminished the dose, so soon as any form of unfavourable effect, such as vomiting, purging, or depression of the system, was continuously manifested. This he believes to be better practice, on the whole, than the current method of giving the antimony with opium. He has always withdrawn the antimony the instant the fever appeared to be decidedly checked, and the patient in the way of convalescence; having rarely found any relapse to follow from this practice, which has the great advantage of allowing the diet of the patient to be carefully adjusted to his capabilities of digestion in convalescence, without the chance of disturbance by a superfluous medicine. Very many mild cases, and some severe cases coming on late in the disease, have been treated by little more than common cough mixtures. Opium has sometimes been given, but chiefly as a palliative; calomel with opium (indeed mercury in any form) has been very little employed; having been given only in obstinately continuing condensations, and then only as an experiment, with great caution, and with little positive result. Blistering has been reserved, for the most part, for severe cases and obstinate condensations threatening to become chronic; poultices, warm fomentations, turpentine, and, more rarely, leeches, have been used as local applications in the acute stage of pain; chloroform, stimulating liniments, blisters, and iodine, at later stages, when pain was not removed. Blood-letting has been used in two cases by Dr. Gairdner, and in two or three more before the patient's admission. All that were bled did well, but Dr. Gairdner seldom sees cases early enough, and acute enough, and in sufficiently robust individuals, to justify the use of this remedy; in which, nevertheless, he has by no means lost faith, believing it to be both very useful in fit cases, and very apt to be made a bad use of in incautious hands. Stimulants, and especially ethereal stimulants, have been freely used in cases in which the vital powers seemed in danger of failing; and that, whatever the treatment in other respects may have been. He has, however, never given stimulants very largely, or as a matter of routine, or of aliment; almost never in slight cases, or in the early stages of the disease; and very rarely indeed to young persons, or those not habituated to the use of alcoholic drinks. Food has been given simply according to the patient's powers of digestion; neither withheld nor pressed: in the febrile period, bread and milk, or beef-tea with arrowroot, or both; during convalescence, a diet more generous and varied, but not overstimulating. In all cases of doubt and difficulty, Dr. Gairdner says he has uniformly adopted the principle, that nature is to be

trusted to a great extent; believing that patients will recover much better and sooner under no treatment at all, than under a routine treatment blindly enforced; or, in other words, that nature is a better manager than a bungling physician, who has always an inexorable system in hand to control her operations.

14. *Typhus and Typhoid Fevers as seen in Dublin.*—Dr. Henry Kennedy read before the Royal Medical and Chirurgical Society, May 22d, 1860, a paper on this subject, an abstract of which we give with a report of part of the discussion to which it gave rise, as the subject is one in relation to which there still exists a difference of opinion.

The object of Dr. Kennedy's communication was to show that while these types or varieties might, in the great majority of instances, be distinguished the one from the other, they were still but the results of a common poison. To the distinctive marks between the two varieties he had drawn attention, in the *Dublin Medical Journal*, as far back as the year 1837, three years before the appearance of Dr. Stewart's memoir. The arguments for the identity of the poison the author divided into general and special. Amongst the former he particularly dwelt on the fact of different types of fever coming from the one room; such as cases with and without spots, or some with dark and others with rose spots, or the conjestive, nervous, and gastric fevers all existing in one family and at the same time. Amongst the special arguments the details of some cases were given where petechiæ existed together with ulcerated bowels; and also cases of the same variety where the two rashes were mixed. The author also noticed the fact that intestinal hemorrhage was at least as common in typhus as in typhoid fevers—contrary to what is usually thought. In conclusion the author glanced at the views now held by many on the stimulant treatment of acute disease. He observed that the extent to which these doctrines were carried elsewhere had not reached Dublin, nor did he think they would: and he considered there were many points, directly involving the general question, which yet required the fullest consideration. Though the author did not enter at all on the general treatment of fever, he spoke of a few points having a special reference to the treatment of typhoid fever. In particular he drew attention to the necessity for making a distinction between the stimulants in common use, of which wine and beef-tea were instanced. In his experience the effects of the former were much less likely to be followed by any unpleasant results than those of the latter; and this he had remarked not only in fever, but also in some of the phlegmasiæ. The cause of this difference Dr. Kennedy attributed to the difference in the constituent parts of the two fluids. To the carbonate of ammonia he also directed attention, as being in general use; and yet, in his experience, he had found it very apt to cause diarrhœa, and latterly had entirely given it up. The medicine he now placed the most reliance on was the dilute sulphuric acid; and he had arrived at this conclusion after having tried the ordinary astringents. The acid, however, was not a new remedy. With the acid he always joined local treatment, such as leeching and blistering; nor of its efficacy—when used with ordinary discretion—had he the slightest doubt, notwithstanding all that had been recently urged against it. In the last place, the author spoke of a certain class of cases of typhoid fever in which it seemed as if the poison were flitting about the system, at one time attacking the abdomen, again the chest, or the brain. In such cases he had adopted the expedient of keeping a blister open, usually on the chest, for some days; and from this plan he had seen very marked advantage.

Dr. Stewart said he was disappointed with Dr. Kennedy's paper, which contained nothing to overturn the facts and principles laid down by Dr. Jenner and other writers, which were now generally accepted by the Profession. It had been long known that the petechial eruptions of typhus and typhoid fevers might co-exist; indeed, they were sometimes found in connection with the eruptions of scarlatina and other eruptive diseases. The important point was—Were the two eruptions so far identical that they might both become dark, semi-petechial, then petechial, and not disappearing under pressure? He had long observed the phenomena of the two fevers, but had never seen a case in which the eruption of typhoid fever had ever, even *in extremis*, become petechial or even

dark. The last crops of typhoid eruption had been as bright and rosy as the first; while the typhus eruption had a constant tendency as the gravity of the case increased to become dark and petechial, and did not disappear under pressure. He looked in vain in the author's paper for that large basis of fact on which his proposition ought to have been founded.

Dr. MURCHISON said the experience of Dr. Kennedy was totally opposed to the experience of the London Fever Hospital for the period of twelve years, during which the different forms of fever had been most accurately observed and recorded. During that period there had been admitted 4000 cases of typhus, and 2000 of typhoid fever; of which about 700 cases of typhus, and 400 of typhoid had proved fatal. Most of them had been examined after death, and in no one instance had it occurred that the characteristic eruption of typhus fever had been observed during life, and the characteristic lesion of typhoid fever had been observed after death; while, on the other hand, in no instance had the characteristic eruption of typhoid fever been observed during life, and the characteristic lesion of typhoid not been found after death. He had observed the phenomena of the diseases in Dublin and Edinburgh, where his experience had been of a similar character. Some persons imagined that if, in a case of fever, diarrhœa appeared as a complication it was necessarily typhoid; and that the appearance of petechiæ indicated the existence of typhus. There could be no greater mistake. Typhus fever was not unfrequently complicated with diarrhœa; in the Crimea it was often complicated with dysentery; but in no instance was typhus fever, so complicated, attended with ulceration of Peyer's glands, as proved after death. Petechial eruptions were not characteristic of typhus, but occurred in many diseases which were not idiopathic fevers, being entirely distinct from the true bulloid or mulberry rash in typhus fever. Dr. Kennedy had lately recorded a case in which he stated that the rash of typhoid fever was observed during life, but there was no ulceration of Peyer's patches after death. The description, however, which he gave of the eruption was a description not of the eruption of typhoid, but of typhus fever. The typhus eruption came out all at once, within a period of one or two days, and continued during the whole length of the fever, getting darker every day; while the typhoid eruption came out in successive crops, or instead of becoming (as the author stated) converted into petechiæ on the fourth day, the characteristic eruption of typhoid fever was by that time disappearing. The occasional co-existence of the two eruptions no more proved the identity of typhus and typhoid fever than the co-existence of the eruptions of typhoid fever and scarlatina, which he had observed in seven or eight cases, proved the identity of those diseases.

Dr. JENNER said he had, since 1846, paid great attention to this subject, and for six or seven years had spent six or eight hours daily in the Fever Hospital, making as careful a record as he could of each case that came before him. He had seen a good deal of fever since, and his latter experience confirmed the conclusions he had drawn from his earlier. He remembered Dr. Bennett being at the Hospital, and pointing to a case, he said laughingly, "Do you think you can tell from that eruption what the ulceration in the abdomen will be?" He (Dr. Jenner) said he though he could; and, the case proving fatal, his prediction was verified. The condition of the intestine could in every case be predicted from the nature of the eruption. Petechial eruptions were found in severe cases of erysipelas, smallpox, and scarlet fever, but that was no proof that those diseases were identical. The author stated that the disease should be studied all over the world, and it had been. Dr. Parkes had observed it on the banks of the Bosphorous, and he stated that the distinction between typhus and typhoid fevers was recognized by the Turkish physicians. In America, the same distinction was made, as appeared by a report of Dr. Flint's on the subject. It was not generally believed, as Dr. Kennedy supposed, that typhoid fever was symptomatic of intestinal lesion. Many of the early cases which he (Dr. Jenner) published, were designed to show that the fever and the lesion bore no relation in severity to each other. A patient might die of virulent smallpox almost before the eruption appeared; and death might occur from the general disturbance in typhoid fever with very little intestinal lesion.

Dr. WILKS said that on the publication of Dr. Jenner's series of cases, ten or

eleven years ago, he commenced studying the subject afresh in Guy's Hospital —not, perhaps, altogether unprejudiced, for he had been taught by Dr. Addison to believe that the two diseases were identical. For three years he noted all the cases, and made numerous post-mortem examinations, and he could not avoid coming to the conclusion that the two diseases were altogether distinct. The anatomical difference—namely, the presence of the lesions in the one case, and their absence in the other—would be sufficient of itself to establish the distinction. He had remarked that the number of cases in which there was a difficulty in diagnosing between typhus and typhoid fever was less than the number of cases in which it was found difficult to diagnose between fever and chest, or lung, or head disease. In either case, however, the post-mortem appearances were decisive as to the nature of the disease. In some instances there was no doubt considerable difficulty in deciding between typhus and typhoid fevers during life.

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15. *Diseased Supra-renal Capsules unconnected with Bronzed Skin.*—E. Crossman, Esq., exhibited before the Bath and Bristol Branch of the British Assoc., April 26, 1860, the supra-renal capsules taken from a patient who during life exhibited no sign of bronzing of the skin. These bodies were totally disorganized and converted into empty cavities, the walls of which were coated internally with a thin layer of yellow cheesy matter.

The subject of the case was a tall thin gardener, aged 59, who became Mr. C.'s patient ten days before his death. In the course of last summer, without apparent cause, his strength gradually failed him, so much so, that he was compelled to give up his occupation. Soon after this, a severe and protracted diarrhœa still further reduced his strength and flesh. A few weeks later, anorexia and vomiting crept on by degrees, accompanied by dull weight and pain at the epigastrium; added to which, at a later period, was a distressing sense of pulsation in the same situation. With these prominent symptoms—viz., progressive prostration, emaciation, anorexia, and vomiting—extending over a period of eight months, he gradually sank.

At the *post-mortem* examination, thirty hours after death, the skin presented no appearance of bronzed colour, but was of a bright yellowish white. The mucous membranes were everywhere anæmic, and the whole body was extremely emaciated. The lungs were healthy in substance, but externally of a dark gray colour, and bound down by numerous old adhesions. The heart was very large, thickly covered with fat, and one segment of the mitral valve was hard and thickened. The chylopoietic viscera were healthy, as were the kidneys, liver, and spleen. The pancreas was not enlarged, but very hard, and coloured black externally. Many of the mesenteric glands presented a condition similar to that of the pancreas, being very hard, and coloured externally black. Some parts of the liver and kidneys were also stained externally black; but whether this may not have been a *post-mortem* stain, I am not prepared to say.—*British Med. Journ.* May 12, 1860.

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16. *Contributions to the Pathology of Diabetes Mellitus.* By Rud. Leubuscher.—The following are the results obtained by Professor Leubuscher and Dr. Passauer from a series of experiments on the influence of various articles of diet in a case of diabetes mellitus upon the secretion of sugar, urea, and chloride of sodium, and upon other circumstances:—

1. The temperature of the skin was throughout below the average: it was generally only 35° C., and even under the influence of an acute affection, which ultimately caused the patient's death, it did not exceed 36° C. Diet appeared to influence the variations less than the temperature of the room.

2. The quantity of urine did not correspond to the quantity of liquid drunk, but exceeded it materially. On one day when six ounces of red wine, three ounces of rectified spirits, and 1000 cubic centimetres of water were taken, the quantity of urine amounted to 3300 cubic centimetres, or less than usual. The tendency of the patients to deceive in these matters renders the fact less trustworthy.

3. With a mixed diet and preponderance of starchy diet with much water,

the quantity of chloride of sodium and urea secreted exceeded the average materially.

4. A preponderance of animal food increases the quantity of urea secreted, and diminishes the amount of sugar without material alteration of the chloride of sodium.

5. A free use of milk with mixed diet produces no change in the relative proportions of the sugar, chloride of sodium, and urea.

6. Alcoholic beverages, with chiefly proteinaceous diet, increases the secretion of sugar materially and diminishes the urea, the chloride of sodium remaining unaltered.

7. Iron given in the form of the lactate from the middle of November to the middle of December, in doses of four to six grains, left the sugar at the average quantity, produced no effect upon the urea or chloride of sodium, the patient feeling generally well.

8. Pepsin taken from the middle of December to the beginning of January, twice daily, in ten grain doses, diminished the quantity of urine; the specific gravity rose to 1.044; all the constituents, sugar as well as urea and chloride of sodium, were relatively as well as absolutely increased. The general health of the patient continued good.

9. Benzoin, in the form of benzoic acid, benzoate of soda, or ammonia, taken for a month daily in doses of six to eight grains, produced no material influence.

Acute symptoms of pulmonary disease, gastritis, and enteritis, resulting from a cold, supervened, during which albumen appeared in the urine, and the patient died comatose on the fourth day of the attack. From the post-mortem account we merely extract the remarks that the vessels of the meninges, and especially the longitudinal sinus, contained an emulsified liquid in which were red coagula. A close examination of the blood exhibited much free fat and white blood-corpuscles, with a considerable quantity of sugar.—*Brit. and For. Med.-Chir. Rev.*, April, 1860, from *Archiv für Path. Anat.*, Bd. xviii.

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17. *Diagnosis of Phthisis by the Microscope.*—Dr. F. J. BROWN exhibited at a meeting of the Southeastern Branch of the British Med. Association (March 30, 1860) some specimens of pulmonary tubercle prepared by Dr. Andrew Clark, of London, which show the presence of the elastic trabeculæ of the air-vesicles and furnish evidence of the destruction of the lung tissue. He also gave a summary of the views of Dr. Clark.

"A few years ago," he remarked, "the pulmonary trabeculæ were discovered in the sputa in phthisis by Schrœder van der Kolk and by Dr. Andrew Clark, independently of one another. The former considers, or did consider, the examination of the sputa valuable only early in phthisis, whilst Andrew Clark holds that the examination is useful at all periods, as being the only *certain* means of detecting the disintegration of the lung and the increase of the disease. It is a fact that the disease often increases whilst the patient is getting fat and appears sufficiently well to deceive himself, his friends, and his medical attendant.

The views of Dr. Andrew Clark, briefly expressed, are as follows:—

1. The parietes of the air-vesicles are indivisible: that is, they cannot be separated into layers. They are made up of membrane with bloodvessels, and yellow elastic tissue arranged as trabeculæ.

2. The air-vesicles are lined by scaly epithelium. The epithelium is easily demonstrated in the child: it is more difficult of demonstration in advanced life. It plays an important part in all chronic structural lesions of the lungs. It is absent in emphysema. The existence of an epithelium of the air-vesicles is denied by Bowman, Rainey, and Beale. They admit the appearance of cell-particles in the air-vesicles, but they believe them to be only the nuclei of the capillaries. They admit, also, the presence of nucleated cells that cannot be ascribed to the capillaries, but they believe them to be the product of morbid action. Dr. Clark's reply is, that no lung is found without them.

3. Previously to the tuberculosis there is a disorder of the assimilation, which may be termed pretubercular cachexia.

4. Phthisis commences with the deposit of tubercle, and is a term common to all the stages of pulmonary tuberculization. Phthisis is the name assigned to a

certain anatomical lesion of the lung, and is to be understood in a different sense to that in which the older physicians regard it; for with them phthisis is hectic fever arising from pulmonary tuberculization. Phthisis, in the language of most practitioners, consists of hectic fever due to softened tubercle in the process of elimination. This is symptomatic phthisis. Anatomical phthisis, so to speak, consists in the lesion of the lung, whether attended or not by hectic fever. The distinction resembles that made betwixt the pneumonia before Laennec's time and that pulmonary lesion recognized as pneumonia subsequently to the introduction of auscultation into practice.

5. Elimination of softened tubercle is the third stage of phthisis, and may go on in one part whilst deposition occurs in another; consequently, there is a mingling of the stages of phthisis—regarding this disease in an anatomical light.

6. Tubercle is a retrograde metamorphosis of the structural elements and of the fluid secretions (if there be any) of the part in which it may be found. Tubercle is not a deposit from the blood, but is a product of vitiated nutrition—not a simple exudation, but a complex result of perverted vital action. When tubercular matter accumulates and presses upon the bloodvessels, it may excite irritation, in which case congestion is not unfrequently set up, which terminates in an exudation, which becomes mixed with the tubercular matter, and afterwards tuberculizes. Such exudation in the first place is just like the exudation that takes place on an inflamed pleura; but the exudation being placed under unfavourable circumstances, does not become developed into a tissue, but degenerates into tubercle.

7. The air-vesicles are the seat of tubercle in the lung.

8. When the tubercular matter accumulates to such an extent as to compress the walls of the air-vesicles, the entire structure of the walls disintegrates, except the elastic trabeculæ (which are alone *characteristic* of the air vesicles).

9. The elastic trabeculæ are seen in the sputa, lying in disorder amongst the disintegrated elements of the tissue, and are readily detected by the aid of the microscope.

10. The elastic trabeculæ are present in the sputa during the elimination of the tubercle, and constitute the diagnostic mark of the eliminative stage.

11. If elimination takes place with only minute deposit in the lung, the microscope will reveal the disease sooner than the pleximeter and stethoscope; but where there is a considerable mass of tubercle in the lung, without elimination of any portion, percussion and auscultation, taken in connection with the general symptoms, will detect the disease, whilst the microscope gives negative results. Again, minute deposit in a quiescent state will be overlooked, although both the ear and the eye be employed for its detection.

12. The physician can confidently declare that phthisis exists when he finds the elastic trabeculæ in the sputa.

13. Phthisis commences with the deposit of tubercle, and tends to one of two issues:—(*a*) to recovery by absorption, by calcification, or by induration and pigmentary transformation; (*b*) or to suppuration and the establishment of hectic fever.

14. It is yet uncertain whether recovery or progressive disease be the more frequent.

15. The air-vesicles may remain filled with tubercle in a state of complete quiescence, without softening or elimination, for years. This is a state of things that the microscope will not determine. It must be worked out by the study of symptoms and of auscultatory signs.

16. The parietes of the air-vesicles remain intact in phthisis until one or other of the following events happen. (*a*) The tubercular matter accumulates to such an extent as to compress the walls of the air-vesicles with such force as to empty or obliterate the capillaries, when, nutrition being suspended, disintegration ensues, and the tubercular matter in one vesicle comes in contact with that in the adjoining vesicle, and so the two masses cohere. (*b*) The tubercular matter softens from any cause. (*c*) The tubercular matter sets up pneumonia, which breaks down the whole mass.

17. The elastic trabeculæ of the air-vesicles cannot be confounded with any

other yellow elastic tissues *likely to be found in the sputa*, because of their character and arrangement.

18. Tubercle is often found in the tonsils; and the elongated cells of the tonsil-tissue, arranged as they are in an areolar form, might mislead an inexperienced observer. A little attention will obviate this apparent difficulty. The quasi-bands seen in sections of the tonsils consist of separate pieces, easily recognized as being separate, whereas the pulmonary trabeculæ are continuous and wavy. However, the distinction is made certain by chemical tests. The pulmonary trabeculæ resist the action of both acetic acid and liquor potassæ (inasmuch as they consist of yellow elastic tissue,) whereas the elongated tonsil-cells resist acetic acid only, and yield to liquor potassæ, which renders them invisible.

19. The microscopic examination of the sputa enables us to detect softening tubercle in the progress of elimination, which could not otherwise be detected; it confirms or corrects the diagnosis between phthisis, dilated bronchi, chronic bronchitis, etc.; and it determines the actual progress of the lesion of the lung.

Thus it is seen that the microscope confirms the opinion of the vulgar as respects "the spitting up of the lights," which is now an undoubted fact.

In conclusion, allow me to state my conviction that the detection of the yellow elastic tissue of the air-vesicles in the sputa is *one of the great discoveries* rendered to pathology by the microscope. The importance of being aware of the true state of matters in any given case, cannot be overrated; and I am sure that you will allow that when once we can pronounce a man to be under phthisis (using the term in the anatomical sense), we are likely to use hygienic and therapeutic means with greater precision and with greater prospect of success than if we considered the case to be one of catarrh, simple dyspepsia, or that *monstrum horrendum* 'debility.'"—*British Med. Journ.*, April 21, 1860.

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18. *Condition of the Blood in Mania.*—Dr. W. C. HOOD read before the Royal Medical and Chirurgical Society (May 8, 1860), a paper on this subject. The researches of Drs. Hittorf and Erlenmeyer, tend to show that in *acute mania* there is a diminution in the amount of fibrin in the blood. Dr. HOOD, aided by Dr. Marcet, with a view of elucidating this subject, has been induced to make careful analyses of the blood of six maniacal patients, during the paroxysm and in a state of convalescence, which induce him to think that the facts arrived at (not before indicated) show, that *there is a marked deficiency of fibrin during the period of maniacal excitement, and a correction of this deficiency during convalescence.* The blood was drawn by cupping at the nape of the neck to the same amount in each case, and immediately collected in earthenware pots containing about two ounces each; and it was in every instance within a few hours of extraction subjected to the same method of analysis. The six cases selected were three of "acute" and three of "recurring mania."

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19. *Abscess in the Iliac Fossa in Children.*—M. BOUCHUT states that iliac abscess is rare except in the puerperal state; and especially rare in children. It may be consecutive to inflammation of the cæcum, or may be produced by foreign bodies perforating the cæcal appendix. Sometimes the iliac abscess arises from psoritis, or from laceration of the psoas muscle. But the proof that this abscess is most commonly produced by foreign bodies, is afforded by its almost constant occurrence in the right side, in the neighbourhood of the ileo-cæcal appendix. Of fifty-seven non-puerperal iliac abscesses collected by M. Grisolle, nine only were on the left side; while, of twenty-six puerperal abscesses, fifteen were on that side. These inflammatory tumours are sometimes situated in the peritoneum, in front of the cæcum; in other cases, they are beneath the peritoneum, and even under the aponeurosis. The intraperitoneal tumours are generally superficial; they depress the cæcum, and impede the passage of feces. When situated behind the cæcum, as in the first of the two cases related above, they are sometimes very difficult of detection. The phlegmasiæ of the iliac fossa manifest themselves sometimes without premonitory symptoms, sometimes after a rigor; there is always severe pain, resembling that of peritonitis. M. Bouchut is of opinion that, by energetic treatment in an early stage, suppuration may be obviated. If pus is formed, it may be discharged

in various directions. When the abscess is superficial, it may open outwardly; if adhesions have been formed between the intestine and the abscess, this may open into the intestine. M. Grisolle and M. Bouchut have each seen a case in which the abscess has opened into the vagina; in other cases the abscess may open into the bladder or peritoneum. Of fifty-six non-puerperal cases collected by M. Grisolle, thirteen were fatal. The treatment according to M. Bouchut, should consist in the early and repeated application of leeches. If the touch indicates the presence of pus, an incision should be made parallel to Poupart's ligament down to the peritoneum. An exploratory puncture having been then made, the incision is to be enlarged, if pus is present; and the wound should be kept open by lint, over which a poultice is to be applied. If the abscess is deep-seated, the treatment should consist in the use of emollients and baths, so as to assist the efforts of nature at elimination. If there be a tendency to induration, flying blisters may be applied; although M. Bouchut does not think that they are so efficacious in cases of suppuration as has been supposed.—*Journ. de Méd. et de Chirurg. Prat.*, Oct. 1859.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

20. *Treatment of Axillary Aneurism.*—A paper on this subject was read before the Royal Medical and Chirurgical Society, April 24, 1860, by Mr. Syme, of Edinburgh. The object of it was to suggest that in general, if not always, the old operation would be preferable to the method of Hunter for the treatment of axillary aneurism. With the view of supporting what might appear rather startling doctrine, the author combated the generally received opinion that the portion of an artery comprehended by an aneurism is not competent for the process of obliteration by ligature, and maintained that the mere circumstance of isolation from neighbouring connections while the vessel still retained its usual relation to the sheath should not render it unfit for the process in question. In favour of this position, he quoted the successful result of ten operations performed by him in the old way for the remedy of traumatic aneurism at the bend of the arm, and also the remedy by the same means, of a carotid aneurism too low in the neck for ligature without opening the sac, which, if allowed to proceed, would have proved fatal, not only to the patient, but to his assailant who inflicted the wound, and who would certainly have been hanged in the event of its proving fatal. The author further related two cases of axillary aneurism, not admitting of relief from ligature of the subclavian, in which amputation at the shoulder-joint was performed with success. But the principal ground of his suggestion was a case of axillary aneurism which had lately come under treatment in the Royal Infirmary of Edinburgh. The tumour was very large, distending the muscles of the axilla, and projecting above the clavicle. It was rapidly increasing, and already showed signs of impending gangrene; while the patient's general condition, as manifested by a pulse of 130, and wandering ideas, was no less alarming. Ligature of the subclavian being quite out of the question, before proceeding to amputation at the shoulder-joint it was deemed proper to ascertain the state of matters in the axilla. But as this could not be done without the risk, or rather certainty, of a fatal hemorrhage, unless the artery could be commanded in the first instance, an incision was made along the posterior edge of the sterno-mastoid, through the platysma myoïdes and fascia, so as to allow the finger of an assistant to reach the vessel where it issues from under the edge of the scalenus anticus and lies upon the first rib. The cavity was then opened, nearly seven pounds of coagulated blood removed, and both ends of the artery tied, as it was found to have been torn across. The patient made a good recovery, and was dismissed six weeks after the operation, able to resume his employment. The old operation, having thus succeeded in a case so formidable and unpromising, seemed worthy of adoption, not merely in cases unsuitable for liga-

ture of the subclavian, but as preferable to the Hunterian method, on account of its greater facility, safety, and certainty. The author, having upon two occasions tied the subclavian artery for aneurism with perfect success, had no prejudice against this operation, but was forced to the conclusion just expressed by his sincere conviction of what was due to expediency. He also begged to suggest that the means employed for effectually commanding the artery, perhaps admitted of more extensive application. It had been used by the author thirty years ago in his first operation for the removal of the superior maxillary bone, in which excessive hemorrhage had been erroneously anticipated, by making an incision between the ramus of the jaw and mastoid process, so as to admit a finger to compress the internal maxillary artery on the neck of the condyle. The author remarked that in this case the superior maxillary bone was removed for the first time in Great Britain, and that the operation is the earliest to be found in the records of surgery.

MR. ERICHSEN said every one must admire the skill with which the operation described by Mr. Syme had been performed; but he could not look upon the case as influencing in the slightest degree the application of the Hunterian principle in the treatment of aneurism. It appeared to him that the author of the paper had not made any distinction between traumatic and spontaneous aneurism. With regard to the former occurring at the bend of the arm and elsewhere, Mr. Syme, like other surgeons, had been in the habit of laying them open. No surgeon would think of ligaturing the brachial artery for aneurism at the bend of the arm, resulting from venesection, but he would lay it open and ligature the artery on either side. Mr. Syme's case appeared to have been a traumatic, rather than a spontaneous, aneurism; and surgeons could not be too careful how they endeavoured to apply to the latter the principles of treatment applicable to the former. Had the case been one of spontaneous aneurism, the tumour would not have been of such rapid formation, nor would there have been so entire a disruption of the artery. Mr. Guthrie, in his work on "Injuries of Arteries," had pointed out in the clearest manner that in all cases of diffused aneurism in the axilla, the line of practice adopted by Mr. Syme in the present case should be carried out. He severely criticized the practice of ligaturing the subclavian artery above the clavicle for diffused aneurism in the axilla, and stated that the proper course was to lay the tumour fairly open, to cut through the pectoral muscles, and ligature the artery where it was injured. Such a course would be highly objectionable in spontaneous aneurisms. He did not believe that the disease was limited to the spot that became aneurismal. In the first case in which the subclavian artery was tied in this country (by Mr. Liston) it was described to be like the finger of a wet glove, and the patient died of secondary hemorrhage in consequence of the diseased state of the coats of the artery. He (Mr. Erichsen) had generally found extensive traces of disease in other parts of the arterial system besides that which was aneurismal; and in some cases disease was found at the same spot in the opposite side of the body. It was incumbent on them to be very cautious how they attempted to overturn a principle of surgery established for seventy years by the practice adopted, successful though it might be, in any one case. The last cases to select for the subversion of the Hunterian principle were those of axillary aneurism. They differed from other aneurisms in being much more liable to become diffused and to run into a state of suppuration and slough, which explained the reason why the practice of ligaturing the subclavian artery above the clavicle in spontaneous axillary aneurisms had not been so successful as the same treatment had been in the case of aneurisms elsewhere.—*Med. Times and Gaz.*, May 5, 1860.

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21. *New Method of Effecting the Radical Cure of Hernia.*—MR. JOHN WOOD read before the Royal Medico-Chirurgical Society (Feb. 28, 1860) a description of this operation. He commenced by giving a brief sketch of the anatomy of the inguinal region. The peculiarities of structure of the parts concerned in inguinal hernia, of which especial advantage is taken in the operation proposed and practised by the author, are: 1. The mobility and sliding power of the skin in the groin, owing to the synovial character and loose areolar meshes of the deep layer of superficial fascia; 2. The total absence of fat from the areolar

tissue of the scrotum, its density, elasticity, toughness, and great vascularity enabling the surgeon to invaginate it into the inguinal canal, to retain it there by stitches, and cause it permanently to adhere to its sides and to the cord: 3. The protection afforded to the peritoneum and vessels (epigastric and circumflex iliac) by the intervention of the fascia transversalis, and its connection with the deep surface of Poupart's ligament; 4. The formation by the conjoined tendon of the internal oblique and transversalis muscles and triangular ligament of the greater portion of the posterior wall of the canal, and the feasibility of raising the former by the finger passed into the canal behind the lower edge of the internal oblique muscle, so as to pass a needle through it and the internal pillar of the external abdominal ring together. The author then stated that the methods respectively practised by Ragg, Bonnet, Gerdy, and more lately by Wutzer, of Bonne, and Rothenmunde, of Munich, most frequently fail in producing a permanent cure chiefly by their not obtaining a hold upon the posterior wall of the canal, and their securing only the anterior portion of the fold produced by invagination, leaving the posterior half of the fold ready for the reception of a fresh portion of intestine. The objections to the introduction of a hard dilating plug into the invaginated fold of skin and its retention, by Wutzer's method, are as follows: That the skin and fasciæ intervening in two layers between the compressing hard surfaces and the serous laminæ of the invaginated sac, ward off from them in a great measure the effect intended—namely, that of adhesive inflammation; while the absence of counter-pressure behind the posterior fold renders the dilating force of the plug almost nugatory, unless sufficient expanding power to cause sloughing be employed, to the great distress, not to say danger, of the patient. The dilating action of the plug upon the canal and external ring leaves the latter in a worse condition than before in case of the failure of the operation. The principle of plugging up a dilatable aperture like the inguinal opening is surely a false one. The invaginated skin invariably descends when the consolidation is absorbed, the latter being temporary only in its duration. The principle of the author's operation is directly opposite to that of dilatation —namely, that of drawing together and compressing the anterior and posterior walls of the canal in its whole length, and their union by the adhesive process with the invaginated fascia of the scrotum, which is detached from the skin and transplanted into the canal, the skin being left to adhere below to the approximated margins of the external abdominal ring. By this means the posterior wall of the inguinal canal is made to act as a valve to prevent any future descent of the bowel, shutting up the superior opening by becoming united to the anterior wall through the medium of the scrotal fascia, which thus affords a very highly organized and vascular connective tissue between the tendinous surfaces, which it would be very difficult to cause to adhere together otherwise. The fascial invagination becomes likewise firmly adherent to the spermatic cord. This continues to be effective even when the temporary effusion of lymph is reabsorbed.

The Operation.—This consists: 1. In detaching the scrotal fascia from the skin over the lowest part of the hernial protrusion with a tenotomy-knife, and then invaginating the fascia into the canal with the forefinger. 2. In passing a strong, well-curved needle, fixed in a handle, armed with a stout, thick thread, and guided by the finger, through three points in the canal—viz., the conjoined tendon and the triangular fascia (forming the posterior wall), and the external pillar of the ring close to Poupart's ligament (forming the anterior wall of the canal). The ends of the ligature are left in the two former punctures, and a central loop in the latter, passing through the pillars of the external ring, and through the same aperture in the skin of the groin. This may readily be done by sliding upon the adjacent aponeurosis. 3. A cylindrical or flattened compress of glass or boxwood, two inches and a half long by one inch wide, is tied firmly upon the axis of the canal by passing the ends of the ligature through the loop, and tying over the compress. Before tightening the ligature, the surgeon should satisfy himself, by passing the forefinger through the external ring, that the ligatures draw upon the posterior wall. The opening in the scrotum should be tucked well up to, but not within, the external ring. In recent cases of hernia, in which the sac is small and possesses an intimate vascular connection with the

peritoneum, and a very slight one with the cord, it may be pushed back into the superior opening, and the ligature applied altogether external to and without puncturing the sac, thus diminishing very much the chances of peritoneal inflammation. But in old and large herniæ the sac has a more intimate vascular connection with the scrotum and cord, and constitutes, as it were, a separate structure, distinct from the peritoneum. In these cases the sac is necessarily invaginated with the fascia, and the ligatures pass through it. In these the inflammation set up in the sac is much less liable to spread into the abdominal cavity, especially when the upper orifice is closed by the ligature. In a large sac the adhesive process is necessary to complete obliteration of the canal, and to prevent future complications. The compress is removed from the fourth to the seventh day, according to the degree of action set up. The ligatures may be left in a week or two longer, to act as conductors for the discharges, and to keep up consolidating action as long as may be desirable. When the sac is punctured, serous fluid flows from the wound in greater or less quantity during the first three or four days. The author called attention to the action of the rectus muscle upon the inguinal canal through the conjoined tendon, in drawing backwards the posterior wall of the hernial canal, thus aiding the dilating action of the protruding bowel in the production and growth of the hernia. The effect of the ligatures and consequent adhesions in his operation directly counteracts this action of the rectus. He considers that the first tendency to oblique inguinal hernia, so often hereditary, is owing to deficient development of the lower fibres of the internal oblique producing an imperfect covering to the internal ring. In some of the cases operated on, he has succeeded in supplementing this deficiency by passing the scrotal fascia well up in front of the internal abdominal ring, and securing it to Poupart's ligament in that position. He considers that the chief source of failure in the performance of his operation, especially in large and old cases, is in not securing a hold upon the posterior wall. By simply attaching the fascia to the pillars of the external ring, and drawing the latter together, the hernia, though prevented for a time from descending into the scrotum, still occupies the canal, and will, sooner or later, again dilate the external ring, unless constantly bolstered up by a truss. The closing of the external ring by the lower ligatures, in this operation, contributes much, however, to secure in its new position in the canal the transplanted fascia. In small cases of direct hernia the closure or obliteration of the external ring only may be effective in producing a cure, if care be taken to obtain a hold with the inner end of the ligature upon the triangular fascia covering the border of the rectus, immediately behind the opening of the external ring. In noticing the objections to the plan, the author showed that, by properly protecting the point of the needle with the finger, and keeping in front of the fascia transversalis, all danger of wounding the epigastric and circumflex iliac vessels or the bowel was guarded against. The fear of peritonitis is avoided in recent cases (in which it is most to be dreaded) by not puncturing the sac at all, but closing up the tendinous opening external to it. In old cases, adhesive action may be set up in the sac without fear of its spreading to the peritoneum, as the results of numerous cases have shown. The objections made to the limited incision into the skin of the scrotum (which is little more than a puncture) he considers to be puerile. Its advantages in permitting the escape of discharges are evident. Full reports of fifteen cases of hernia (all inguinal) were appended to the paper. One of the cases was a boy of eight years of age; the ages of the others ranged from fifteen to fifty-four and fifty-eight years. One was a female with bubonocele; the rest were males. Three were cases of direct, the rest of oblique hernia. Thirteen were scrotal; four of large size, and three with very large and lax internal openings. Two were congenital, and two complicated with varicocele (cured also by the operation). In only one case were the symptoms at all severe, or gave suspicion of peritonitis. In this case the patient was in King's College Hospital eight weeks, the symptoms were produced by burrowing of matter between the oblique muscles, following a diarrhœa then prevalent in the hospital (in July last). This patient made an excellent cure, was treated entirely without truss, and was one of the cases shown to the society. The hernia had a very large internal opening, and the subject was cachectic and

ill-nourished before the operation. In one other case the patient was in bed a month; in another there was partial sloughing of the sac, which was a large and long one, with a very pendulous scrotum, and a large varicocele. This case was treated also entirely without truss, and both hernia and varicocele were cured in eighteen days. The duration of treatment in the rest of the cases varied from nine to twenty-one days. Eight were treated entirely without truss. Thirteen are good and persistent cures, and have remained firm ever since, extending over the following periods of time: one (the first), very nearly two years (this case was published in the *Lancet*, of May 29, 1858); another, one year; two, ten months; four, nine months; three, eight months; one, two months. Three of the cases had been before operated on by Wutzer's and Ragg's methods; one case was operated on twice; one is doubtful; one was re-ruptured by indiscreet and early hard lifting without truss. Six cases of cure were exhibited by the author to the fellows of the society. Of these, four had been treated entirely without truss, and all had been well, and some severely, tested by lifting and heavy labour. The first case (operated on nearly two years ago) was among those exhibited. No difference whatever was apparent between the groins of the two sides. One had been cured in a year, three in nine months, and one in eight months. One of those treated without truss was congenital, in a young man aged twenty years; another was of five years' standing, in a man aged fifty-eight. The rest were of eighteen, sixteen, and three months' standing respectively. All were scrotal herniæ, and two direct. Two had chronic bronchitis (at times severe) after the operation, and one during the progress of the cure. The paper was illustrated by diagrams, to which the author directed the attention of the fellows.

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22. *Mammary Inflammation and Mammary Abscess.*—Dr. McClintock read before the Surgical Society of Ireland, April 14th, 1860, some interesting observations on this subject. He stated that during the last five years 54 cases of mammary abscess have been treated in the chronic wards of the Lying-in Hospital. In *ten* instances *both* breasts were affected; in *eighteen*, the right; and in *twenty-six* the left breast was exclusively engaged.

The great preponderance of cases of mammary abscess on the left side is somewhat remarkable, especially when taken in connection with the fact that other puerperal lesions evince a similar partiality for the same side of the body. Can the position on the left side during labour and delivery have anything to say to it? This question we cannot positively answer; but it is curious that in the practice of Velpeau, at Paris, where all women, as you know, are confined on the back, abscess occurred with equal frequency in right and left breasts.

A very large proportion of the fifty-four patients had some form of sore nipple previously to the occurrence of inflammation of the gland. In nearly all of them the inflammation came on days or weeks after the patient had left the hospital, or had ceased to be under medical care. On a few occasions, I have had an opportunity of observing the inflammation of the breast to supervene immediately and directly upon the ulceration or fissure of the nipple. The great danger, in fact, to be apprehended from sore nipples, is mammary inflammation, and this may be considered imminent when the base of the nipple becomes hard and tender. Poulticing the nipple and giving it perfect rest are the best means of preventing the extension of this inflammation to the substance of the gland.

Let it not be supposed that I regard this as the only cause of mastitis. Far from it; but I believe it to be a very influential and a very frequent one. The popular notion is, that retention of the milk and the consequent distension of the breast, is, in almost every instance, the cause of the inflammation; and by the great mass of practitioners the same notion is too exclusively held.

This idea may, I think, be regarded as the last lingering figment of the doctrine so strongly held by Puzos and the leading obstetric authorities of his day, and even later, which ascribed many puerperal diseases to the morbific action of the milk. Hence, puerperal insanity was designated *mania lactea;* secondary pelvic inflammation, or pelvic cellulitis, was a *depôt-laiteux;* the effusions into

the belly in puerperal peritonitis were the curd and serum of the milk, and phlegmasia dolens was the "milk leg" of this class of pathologists whom Meigs, with contemptuous sarcasm, calls by the name of "the milk men."

I have very rarely known inflammation and abscess to result from distension of the breast alone, and where there was no irritation of the nipple, nor abscess in the breast before. Neither do I recollect ever seeing mammary abscess in a woman whose child was dead born; or supervening upon the death of a nursling, where no other exciting cause of inflammation was present. And yet in both these cases the gland is unavoidably subjected to considerable distension. Upon this point Velpeau states: "Attentive consideration of the facts shows, in the most unquestionable manner, that women who nurse are more frequently affected with abscess than those who do not."

The bearing of this upon practice is obvious enough—actuated by the notion that retention of the milk is the grand source of mischief, we find nurses, and patients, and occasionally even doctors, using every means, natural and artificial, to "draw the breasts," and no ways deterred from doing so by the presence of a sore or inflamed nipple; indeed, this is always considered by patients as an additional reason for the more vigorous employment of these exhaustive measures, and the natural effect of them, is to insure the occurrence of what is so much dreaded. I have no objection to rubbing or suction of the breasts to relieve or prevent over-distension, provided the nipple be not sore; if this be the case, however, our first care should be to give it perfect rest, as there is more danger of inflammation extending from the sore nipple, than originating in the distended gland, and as for the distension of the breast with milk, good hand-rubbing and the application of the cere cloth will seldom fail to relieve it. Before ordering a breast to be rubbed, it is of the greatest importance to distinguish the hardness of simple lacteal distension, from the hardness of incipient inflammation. Through inattention to this, I have seen bad abscesses produced which might have been prevented.

The external employment of extract of belladonna has been much praised of late for its power of promoting the absorption of the milk. In my opinion, however, its efficacy in this way is little superior to the common cere cloth, and I speak from the experience of a considerable number of cases where I submitted it to the fairest test possible, viz., one breast of the patient was covered with the ordinary cere cloth, and the other breast was well coated with extract of belladonna. The remedies were thus fairly tried, and in only one or two instances was there any perceptible difference in the effect of the two remedies; and in these the difference was very slight. The patient herself thought the "black breast" was a shade softer than its fellow which had been enveloped in the cere cloth. It might be attended with risk to the child to use the belladonna, if the woman were still suckling.

Velpeau, speaking of chaps or fissures of the nipple, says that the disease may extend into the substance of the breast through the lactiferous tubes, or into the neighbouring areolar tissue, to such an extent that more than one abscess of the breast has been caused in this way. I think he might have gone further and said that very many abscesses have thus originated. This author does not seem aware of the important part which sore nipples play in exciting mammary inflammation; for in answer to the question, "Should a woman with fissured nipples cease from suckling?" he says, "As a general rule, no;" but he subjoins this prudent advice: "If the disease be obstinate, if the woman continue to be much affected, and the child get ill, or fall away, it is better to resort to a wet nurse, since that is the *only measure* which can restore quietness and health to both mother and child."

In our *Practical Midwifery*, Dr. Hardy and I have laid stress on this same point, and all my subsequent experience confirms me in the opinion there expressed. The resolvative treatment of mammary inflammation is admitted to be very unsatisfactory, rarely effecting the desired end, even though undertaken at the very onset of the attack, and carried out with vigour. After free purging, the best internal treatment I believe to be the tartarized antimony in nauseating doses, as recommended by Dr. Beatty. In the way of topical treatment we have a choice between leeching, hot fomentations, mercurial ointment, and cold

lotions, and, after some experience with each of these, I am bound to say that the cold lotion has more frequently succeeded than any of the others. At the same time I must add that the proportion of cases in which resolution has been brought about by its means is very small. The lotion I have been in the habit of ordering is composed of muriate of ammonia dissolved in about equal parts of vinegar, water, and spirits of wine. Whether the sal ammoniac possesses any peculiar or discutient property in these cases I will not pretend to say. Mr. Tuson, however, speaks of it in very favourable terms, and says he has seen it disperse inflammatory swellings of the breast, even when the presence of matter was quite palpable.

I have notes of cases where, under the use of the above lotion, resolution took place after the formation of a phlegmonous tumour of the breast, attended with an erythematous blush on the surface, and the usual pain, tenderness, and febrile action of acute mastitis. In nearly every instance, not excepting the unsuccessful ones, patients have felt a considerable mitigation of the pain by the employment of the cold lotion. It is but proper to add, that in two instances suppuration had unquestionably taken place; yet under the use of the lotion the matter was entirely reabsorbed. One of these patients had an abscess not long before in the same breast. It is rare for mammary inflammation to arise before the fifth or sixth day after parturition; but if it did, I would not, under these circumstances, employ the cold, as metastasis might take place to the uterus. For the same reason, any treatment that would "repel the milk," or rather repel the blood from the mammary gland, is not prudent within the same period *post partum*.

With regard to the exact time for opening mammary abscesses, there exists a difference of opinion among surgeons; some recommending it to be done as soon as the presence of matter is established; whilst others advise us to wait until the abscess is pointing, or the matter immediately beneath the skin. "Perhaps," says Cooper, in his *Surgical Dictionary*, "as a general rule, the surgeon should never wait for an abscess of the breast to approach the surface, but make an opening as soon as the slightest degree of fluctuation is perceptible: for if this be not done, and the abscess is not very superficial, the matter will spread and form sinuses in different directions." On the same point Sir A. Cooper thus speaks: "If the abscess be quick in its progress, if it be placed on the anterior surface of the breast, and if the sufferings which it occasions are not excessively severe, it is best to leave it to its natural course; but if, on the contrary, the abscess in its commencement is very deeply placed, if its progress be tedious, if the local sufferings be excessively severe, if there be a high degree of irritative fever, and the patient suffer from profuse perspiration and want of rest, much time is saved and pain avoided, by discharging the matter with a lancet."

Velpeau says an early opening is useful in subcutaneous abscess, less advantageous in the deep-seated or submammary variety, and may even prove injurious in the glandular or parenchymatous abscess, which is the only kind where there is some advantage in not anticipating, but in giving time for the formation to open itself, or at any rate in opening them merely by puncture.

During an experience of nine years at the Lying-in Hospital, the rule of *late puncture* was the one almost invariably followed, and in every single instance with the most satisfactory result. It has been supposed that by delaying to evacuate the abscess, its size would of course be increased, and that consequently the obliteration of its sac would be proportionately slow in taking place. In answer to this objection, I can only say that my experience does not at all warrant such an apprehension. Nay more, the most rapid cures I have seen after lancing the breast, were cases where the matter was so near the surface that ulceration was on the point of taking place, and the abscess had attained a very great magnitude. A very remarkable example of this kind came under observation at the hospital a couple of months ago. A young woman, with red hair and fair complexion, who was a few weeks confined, applied for admission to the chronic ward on account of an abscess which had been forming for some days in the left breast. She was in great suffering, and the breast was enormously swollen, and very much discoloured. The tumour was most prominent

in the situation of the areola, and all trace of the nipple was effaced. The colour of the part was dark and mottled, as though on the eve of bursting, and I need scarcely add that fluctuation was everywhere quite distinct. On plunging a bistoury into the breast, a thick jet of purulent matter was forcibly projected to the distance of several inches. In the course of a few minutes thirty-six fluidounces (by measurement) of pus were spontaneously discharged. This was certainly the largest mammary abscess I ever saw; nevertheless, not an ounce more matter was secreted, and this vast sac was entirely closed in the space of five days. In this and the other like instances which I have seen, strapping the breast with adhesive plaster was employed after the second day. It was impossible to know in what part of the breast these abscesses commenced; but in each of them the gland was involved, I think, to a greater or less extent, at the time the patient was seen.

Though advocating, as a general rule, the delayed opening of the abscess, still I would not go so far as to say it should never be departed from; for in some instances, especially where the collection is sub-mammary, it may be expedient to make an early incision on account of severe pain and constitutional irritation, or to prevent the burrowing of the matter. The point to select for puncture should be as remote as possible from the nipple, so as to lessen the risk of its retraction, which but too surely takes place when the opening, whether natural or artificial, is within the areola.

Having had occasion to allude to strapping or compression of the breast, I would wish to say a word upon it here. The practice, which MM. Trousseau and Contour were the first to introduce, was strongly recommended by them in every stage of mammary inflammation. This precept is, perhaps, too universal, and leads one to expect too much from the agent. Of its great utility *after the evacuation of the abscess*, and the *subsidence of surrounding inflammation*, I can speak in the strongest terms. When so employed, I have always found it a most admirable means of checking the discharge, and obliterating the sac of the abscess. Upon this point the result of my experience is fully corroborated by that of Velpeau. "Notwithstanding its unquestionable efficacy," he writes, "compression can, however, scarcely be employed at all in cases of pure and simple inflammation of the breast, nor in abscesses which are still closed. . . . It is more particularly where the pus has found an exit that compression is useful. After the opening of an abscess, more than any other method, it permits of our bringing the edges of the wound together, so as to promote its cicatrization, and by its assistance we sometimes succeed in completely curing the largest formation in the course of two or three days."—*Sydenham Society's Translation.*

Of the lacteal or lactiferous tumour, spoken of by Sir A. Cooper as occasionally forming in the breast after delivery, and requiring to be opened, I have not seen a single example, and on a very few occasions have I seen milk coming away in the discharge from an abscess.

Only one example has fallen under my notice in which I felt satisfied the abscess of the breast was purely *symptomatic*. In this instance it succeeded to uterine phlebitis. An enormous swelling, attended with great pain, and some discoloration of the skin, formed in the upper part of the right mamma, extending upwards to near the clavicle. On dissection, an immense quantity of unhealthy purulent fluid was infiltrated throughout all the structures of the part, and even permeated their tissues. In strict nosological nomenclature, then, this was a diffused symptomatic sub-mammary abscess.

My remarks hitherto have been confined to cases of mammary inflammation and abscess *subsequently* to delivery. The same lesions may, however, affect the breast of the pregnant woman, and of such I have seen many examples occurring at the third month and upwards.

Denman has shrewdly remarked that the state of pregnancy, though not exactly one of disease, yet borders very closely on it. This observation is applicable to every organ sympathetically or directly influenced by conception. The breasts, among others, become the seat of increased vascular and nervous activity, and hence a very trifling external injury is sufficient to induce serious inflammation.

When this arises spontaneously, we are to explain its occurrence, not by a retention of milk or obstruction of the lacteal ducts, but rather by supposing that the hyperæmic condition of the gland, which is a normal condition at this period, has gone too far—has exceeded the physiological limit, and merged into actual phlogosis. I cannot say that *ante-partum* abscesses present any notable difference in their symptoms or course from those taking place *post-partum*, except that they are, perhaps, more frequently situated in the *lobules* of the gland.

When allowed to burst of themselves, I have generally observed that they did so by two or more separate openings. If occurring towards the latter end of gestation, it may be found impossible to get the abscess to close till after delivery. In cases of an earlier formation, the abscess has completely healed long before the setting in of labour, and, with a little extra caution, the woman has been able to suckle from that breast, though, generally speaking, a breast that has been the seat of inflammation and abscess, is more likely to be affected with the same again, on the occasion of next lactation.

Dr. Johns thought that the Society was indebted to Dr. McClintock for bringing forward a paper so valuable as that just read. With respect to the use of the extract of belladonna in mammary abscesses, he had tried it frequently without any beneficial result. He found the lead lotion, applied warm, the most useful in those cases. He had seen lamentable consequences follow the employment of cold lotions, and it was common practice amongst the poor to use cold vinegar. Leeches were applied with advantage for the purpose of lessening pain, which was sometimes so severe as to keep the female awake at night. As to the time considered most desirable for opening the abscess, he should say that he was rather in favour of the early opening, because it prevented burrowing, and the healing took place more rapidly. Every practical surgeon had seen breasts become like a rabbit-burrow. He saw sinuses in every portion of the breast, and it was necessary to make a large sewer, as it were, in order to facilitate the healing process. An early opening, would, he conceived, have saved the pain and annoyance endured in the case to which he alluded. Then, as they were aware, the abscess was sometimes apt to burst through the nipple, and a large slough on the breast did not heal very quickly. Within the last month he had a case under his care in which he adopted the early opening, and about a small teacupful of matter was discharged. The discharge ceased in three days; and at the end of the fifth day the abscess was completely healed. After poulticing he found the spirit lotion, and also compression by sticking plaster, to act well in contracting the cavity. As soon as an abscess was formed, the occurrence of nodulated tumours was not unusual; and he had seen great benefit derived from a liniment composed of iodide of potassium, with water of caustic potash —a scruple of the iodide to two of liquor potassæ, and an ounce of olive or almond oil.—*Dublin Medical Press*, May 2, 1860.

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23. *Injection of Iodine into the Peritoneum.*—M. Boinet, in a paper on the differential diagnosis of abdominal tumours and ovarian cysts (*Gazette Hebdom.*, Jan. 6, 1860), mentions a case in which he, by mistake, injected the iodized fluid intended for the radical cure of ovarian cysts into the peritoneum, with the effect of producing a radical cure of ascites, which, he states, had been confounded with ovarian dropsy.

A young lady, of about thirty years of age, came to M. Boinet to be cured of an ovarian cyst, because she had heard of his iodine injections. She objected to an examination, because she had been well assured of the fact of her disease being ovarian by two eminent hospital physicians, and an appointment was accordingly made for the operation. Entirely trusting to the diagnosis of his learned *confrères*, the author, assisted by Dr. Delarue, and without even attempting a verification of the previous diagnosis, made a puncture, and evacuated above twenty litres (forty-two pints) of serum. He then made the injection; but at the first introduction of the iodine the patient uttered so piercing a cry, and felt such intense pain, that M. Boinet at once felt assured that he had injected the peritoneal cavity. Universal purulent peritonitis resulted, placing the patient in imminent danger. Still, after much anxiety, and repeated punc-

tures made for the purpose of evacuating the pus from the peritoneum, a radical cure followed. The patient is now (six years after the operation) enjoying excellent health.

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24. *Communicability of Secondary Syphilis.*—In a communication read before the Harveian Society of London (May 17, 1860), Mr. WEEDEN COOKE, said that it was singular how many questions respecting syphilis remained unsettled, considering the number who suffered from the disease, and the length of time it had been known and studied. Even the primary symptoms still give rise to controversy. Some declare the hard chancre only infectious; others that the soft chancre does not infect the constitution, but may produce a hard chancre which does infect; while others denominate the soft chancre a chancroid ulcer which is not syphilitic at all. A fourth party considers both these chancres syphilitic, and therefore capable of producing constitutional symptoms. As a consequence of differences of opinion there is much diversity of treatment, which is a practical evil. Respecting the communicability of secondary symptoms, there is much yet to be cleared up. It is a recognized fact, that secondary syphilis is conveyed through the father to the fœtus in utero, and from the fœtus to the mother. Mr. Cooke had verified this fact in numerous instances. He related the case of a lady who had two syphilitic children without herself being affected, but upon the birth of a third she exhibited all the signs of a severe constitutional attack. Although this mode of communication had been long recognized, it has until recently been denied that secondary symptoms ever were communicated from one person to another. It is well known, however, that M. Ricord, the staunch supporter of non-communicability, has been obliged to modify his opinions, owing to the production of incontestable evidence that the discharge from secondary ulcers did produce eruptions and ulcers of a similar character; while the French authorities, convinced of the possibility of this infection, not long since prosecuted two medical men for inoculating two children suffering from favus with the matter of secondary syphilitic disease. Mr. Henry Lee also has recently brought before the Profession instances which favour the conclusion that the constitutional disease can be conveyed from one person to another. Mr. Cooke then related the particulars of a boy who had recently been under his care at the Royal Free Hospital exhibiting indubitable evidence of this occurrence. A fine boy, seven years of age, was covered with an eruption which could not be mistaken for anything but psoriasis syphilitica. He had also enlargement of the occipital glands, the throat was injected, and recently, from being a very healthy boy, he had become cachectic. He was ordered two grains of gray powder twice a day, and got quite well in less than three weeks. His mother, who brought him, was herself afflicted with the same eruption. She had also ulcers on the inside of the lips and cheeks, and had suffered much from rheumatism. Her husband had given her primary syphilis one year before. After being "cured" of this, secondary syphilis appeared, and she was treated and got well. She remained well until about six weeks ago, and had since that time been affected as stated. The boy slept with his mother, and she was of course in the habit of kissing him. A month after the reappearance of the disease in the mother the son became affected. This case Mr. Cooke considered conclusive of the possibility of communicating secondary syphilis. It was no doubt a very rare occurrence, because the discharge from a secondary ulcer would very rarely be applied to a raw surface capable of absorbing it, but when so applied it evidently had the power of infecting a previously healthy person, and it was most desirable that this fact should be known and recognized.—*Med. Times and Gaz.*, June 2, 1860.

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25. *Condition of the Prostate in Old Age.*—Dr. J. C. MESSER, R. N., presented to the Royal Med. and Chirurg. Soc. (May 8th, 1860), a report on this subject, founded on the dissection of 100 specimens in individuals over sixty years of age. In order to facilitate the consideration of the details of one hundred dissections of the prostate after the age of sixty, the author had arranged them into three classes, namely: First. Those under four drachms' weight; Second. Those between four drachms and six drachms' weight; Third. Those

over six drachms' weight. By so doing a broad division is at once made between those that are comparatively healthy, namely, the first and second classes, and those that are so altered as to be likely to affect the health of the patient, comprised in the third class. In the first class there are 20 cases, giving :—

	Minimum.	Maximum.	Medium.
Age	60	94	76.2
Weight . . .	4 drs.	6 drs.	4 drs. 57 grs.

These cases, for the most part, differed from the normal state only in point of size, and offered no obstruction to the flow of urine. The presence of small black concretions was very general in these as well as in all the other cases. In 4 cases there were slight appearances of the formation of circumscribed tumours. In 1 case abscess was found associated with stricture of the urethra. In 1 the posterior lobe showed a tendency to enlargement; but it was difficult to say whether the enlargement was more intimately connected with the prostate or with a fasciculus of the muscular coat of the bladder. In the second class are 45 cased, which may be considered normal in condition, and which give :—

	Minimum.	Maximum.	Medium.
Age	60	94	76.2
Weight . . .	4 drs.	6 drs.	4 drs. 55 grs.

None of these cases suffered from urinary obstruction connected with the prostate during life, although the bladder was often found fasciculated. In 12 of these circumscribed tumours were observed, for the most part only slightly developed; in 3 the posterior lobe was slightly enlarged: in 1 abscess was present, the consequence of general paralysis. In the third class are 35 cases, which give :—

	Minimum.	Maximum	Medium.
Age	60	87	75.2
Weight . . .	6 drs. 15 grs.	48 drs.	15 drs. 2 grs.

In 17 of these the enlargement affected both lateral and posterior lobes; in 14 the enlargement existed chiefly in both lateral lobes; in 1 the enlargement affected only the left lateral and posterior lobes; in 1 enlargement preponderated in the left lateral and posterior lobes; in 1 enlargement preponderated in the left lateral lobe; in 1 enlargement preponderated in the posterior lobe. Thus it appears that 35 per cent. of all prostates after the age of 60 are abnormally large, 20 per cent. are abnormally small, and 45 per cent. are within the limits of the normal weight. This enlargement is principally caused by increase of the fibrous elements of the body; the glandular also being increased in amount, but not to the same degree. This new fibrous tissue is deposited in concentric layers, and so forms circumscribed tumours. The frequency of this fibrous deposit is shown by the fact that it was present in 34 out of 35 cases of enlargement, in 27 of which it was found in the form of tumours; in 7 there was no appearance of tumours. It also appears that those glands in which the tumours are marked are liable to the greatest enlargement, as some thus affected were found to weigh 30 drs. and even 48 drs., while those in which the tumours did not appear never weighed more than 17 drs. A comparison of the relative frequency of enlargement of the different parts of the gland shows that the lateral lobes are much more liable to be affected than the posterior; 34 of 35 cases were affected in their lateral lobes, while only 19 of the same number were affected in the posterior lobe. It is rare to find the posterior lobe enlarged while the rest of the gland is normal; only 1 such case in 35 was found. Enlargement of the posterior lobe is the chief cause of obstruction to the flow of urine; but that may also be the consequence of hypertrophy of the lateral lobes, especially when it takes the form of tumours, and they project inwards upon the urethra. It appears from the nearly equal average age in all three classes, that the condition of the prostate does not materially affect the longevity of the individual. A slight difference does, however, exist in favour of those in whom the gland is most nearly normal, the average in these being 76.2, and in the enlarged 75.2. The presence of abscess in the prostate produces enlargement to a

greater or less extent, seldom, however, to the same extent as fibrous deposit. The most frequent cause of abscess in the prostate appears to be obstruction to the flow of urine, either from stricture of the urethra, enlargement of the prostate, or the consequence of paralysis of the bladder. The frequency of abscess in the enlarged gland is in the proportion of 5 in 35; in those between 4 drs. and and 6 drs., 1 in 45; in those under 4 drs., 1 in 20. The causes in these cases were—stricture of urethra in 3 cases; frequent retention in 3 cases; paralysis of bladder in 1 case. Tubercle is the only other abnormal deposit giving rise to enlargement of the prostate noticed in these cases, and that only in 1 case, which weighed 24 drs. A similar deposit was observed in the lungs, right kidney, and mucous coat of the bladder in this subject. It is worthy of remark that while retention of the urine, more or less complete, is the most important symptom and consequence of enlarged prostate, it is not found in every case. The proportion of men in advanced years suffering from the consequences of enlarged prostate is indeed small. Thus among 1600 old men, with an average sick list of 200, not more than 10 are under treatment for this disease, and half of these only occasionally. A much larger number must be affected with enlargement, as shown by post-mortem examinations of the gland. In 35 cases of enlargement found after death, 13 suffered no urinary symptoms during life, and 2 others only after the occurrence of serious lesions to the nervous system shortly before death. Although many of these cases were not greatly enlarged, some of them plainly showed that the prostate may be greatly altered, and yet the patient be free from urinary obstructions, as in one case, where the prostate weighed 8 drs. 30 grs., with prominent enlargement of the posterior lobe; in another, which weighed 19 drs. 30 grs., with general hypertrophy, and great encroachment on the urethra; in another, which weighed 26 drs. 30 grs., with the enlargement principally seated in the lateral lobes. On considering the favourable circumstances for the formation of phosphatic calculi in cases of enlarged prostate, it is surprising that these concretions are not more frequently found. Of the 35 cases of the third class, phosphatic calculi were found in two, the largest weighing 7 drs. 45 grs.; in another, two uric acid calculi, of about 30 grs. each, were found.

Mr. Henry Thompson said he had learned with great interest the result of Dr. Messer's careful and extended investigations. Having himself produced at this Society three years ago fifty prostates dissected by himself, he was extremely anxious to compare his own results with the more recent ones of Dr. Messer. He would briefly draw a comparison between them in relation to three or four points. First, the question of numerical frequency with which the enlarged prostate occurs among elderly men. Mr. Busk had been, perhaps, the first to question the received opinion that it was a natural result of old age. He (Mr. Thompson) had first applied the numerical method to the question. He found 32 per cent. enlarged above fifty years of age; Dr. Messer 35 per cent. above sixty. Not above 12 per cent., however, showed symptoms during life. He did not consider that the 20 per cent. of prostates found by Dr. Messer, weighing less than four drachms, were abnormally small; true atrophy was much more rare than that. In reference to the seat of enlargement, he (Mr. Thompson) had published the result from an examination of 123 specimens; the conditions found in Dr. Messer's 35 cases corresponded very closely indeed. The frequency with which fibrous tumours occurred in the enlarged prostate, was a subject to which he had drawn special attention. Dr. Messer had further investigated it, and had remarked the presence of these tumours in 27 out of his 35 cases. The question of real incontinence, caused by enlarged prostate, was one which had been also carefully studied. It was well known that the so-called incontinence caused by enlarged prostate was almost invariably the overflowing surplus of a distended bladder, and indicated retention, not incapacity of the bladder to retain. Dr. Mercier, of Paris, had, in 1841, pointed out the fact that, by a peculiar formation of the enlargement, it occasionally happened that the neck of the bladder was rendered patent, and the urine all ran off as fast as it was secreted. This was excessively rare, and he (Mr. Thompson) had not met with it among the numerous cases that he had examined; but there appeared to be two cases among Dr. Messer's which corroborated the view referred to.

He begged to thank the author for his valuable contributions to the subject under consideration. The confirmation of his own researches by this paper had been very remarkable.—*Med. Times and Gaz.*, May 19, 1860.

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26. *Enlarged Prostate.*—Dr. Maclachlan exhibited to the Royal Med. and Chirurg. Soc., May 8th, three specimens of this. The first, which was that of a man 86 years of age, was the largest which had been met with in Chelsea Hospital for the last twenty years. The man had not suffered much, but occasionally was troubled with retention of urine. On these occasions it was generally easy to introduce an instrument, though sometimes there was difficulty—the catheter, no doubt, getting entangled in the transverse band, which was seen in the preparation, uniting the two lateral lobes, and also finding its way into a *cul-de-sac*, terminating the urethra in this specimen, immediately below where the so-called middle lobe usually exists. There was seldom impediment in micturition, notwithstanding the enormous size of the prostate, except when the man had been drinking, and then he invariably came into the Hospital almost in a dying state. It was on one of these occasions that death took place. The second specimen was chiefly interesting, as it had been taken only a few days before from a man 73 years of age, who underwent the operation of puncture of the bladder about four years previously. There the obstruction arose from enlargement of the middle lobe, which was the size of an ordinary marble. The third specimen was taken from a case where it was also necessary to puncture the bladder, though the prostate was but of moderate dimensions. There was sometimes great difficulty in introducing a catheter, even where afterwards there seemed little to account for it: the parts then seemed to be altered from their usual position by the distension of the bladder and the enlargement of the parts, and one was much surprised, on subsequent examination, that the instrument should not have passed easily. He (Dr. Maclachlan) thought Dr. Messer's paper valuable as confirming the opinion that so far from enlargement of the prostate being common in the old, it was the reverse—atrophy of the gland was the rule, and hypertrophy the exception.

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27. *Tubercle of Bone.*—Dr. Echeverria has brought forward in his thesis for the degree in medicine, some interesting points illustrative of the pathology of tubercle in the vertebra. The following are his conclusions:—

1st. That the tuberculization of vertebræ, like that of other bones, is a totally different alteration from that of other organs.

2d. That in bone, tuberculous infiltration never exists, that which is so called being of a nature differing essentially from tubercle of the encysted form, which is the only form in which it is found in bone.

3d. The disappearance of the vertebræ takes place by resorption and invasion; occasionally a separation into fragments of the lamellæ of spongy tissue exists, in which case the remainder depends upon the alteration alluded to, mechanical pressure having nothing to do with it.

4th. The destruction of the vertebræ bears no relation to the abscesses found, which are more frequent when no gibbosity exists.

5th. Deformity of the spinal canal generally occurs without obstruction. Thickening of the dura mater opposite the bend of the canal is the commonest cause of paralysis; sequestra and products of alteration being less common causes.

6th. The healing of tubercle of vertebræ occurs by means of a solid callus. The external callus is not worthy of the name, as it is only a consolidation from stalactites and bony projections.—*Brit. and For. Med.-Chir. Rev.*, April, 1860.

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28. *Results of Amputations observed at Constantinople during the Crimean War.*—M. Salleron was in charge of the Dolma-Bagtche Hospital at Constantinople, which he represents as of faulty construction and deficient in hygienic appliances. Any mischief which would have resulted from these circumstances alone was augmented by the unavoidable overcrowding of its wards with the wounded soldiers.

The immediate object of the author's paper is to give an account of the ampu-

tations performed and treated under these painful circumstances, and especially to point out the greater amount of mortality that attended secondary amputations. He selects the period from the 1st of May to the 1st of November, 1855, as being that during which the comparisons he desires to institute may be best made. During it, 2,753 gunshot-wounds were admitted, of which more than one-half were of a very severe character. Of the 2,753 patients, 2,009 were either discharged, or more often transferred to France for ulterior treatment, and 744 died. After great engagements, the subjects of amputation were usually evacuated upon Constantinople as soon as possible, arriving there three or four days after the performance of the operations, with the stumps, as regards dressing, bandages, and cleanliness, in a most unsatisfactory condition. These operations and those performed in the trenches are entered in the hospital registers as immediate amputations, the secondary ones being those performed afterwards at the hospital itself. The bulk of these latter were also performed from five to ten days after the accident. The total number of amputations was 639—*i. e.* 490 amputations in continuity, and 149 disarticulations. Of the 639, 419 were primary operations, furnishing 221 recoveries and 198 deaths; and 220 were secondary operations, furnishing 73 recoveries and 147 deaths. Thus, among the 639 cases there were 294 recoveries and 345 deaths, the primary operations yielding more than a half of cures, and the secondary operations yielding but a third.

M. Salleron next examines into the immediate causes of this great mortality after amputation—a result so opposite to that which he and the other French surgeons had been accustomed to in Algeria, where amputations succeed very well. Omitting causes which only operated on a few cases, we find that of the 345 deaths, 65 resulted from gangrene with emphysema, 45 from hospital gangrene, and 228 from purulent infection.

Gangrene with Emphysema.—The author met with gangrene under two forms —the *œdematous* or mild form, and what he terms the *emphysematous or instantaneous* form. No case of the former proved fatal, but rapid death occurred in 65 instances of the latter; 46 of these had been amputations in continuity, and 19 disarticulations. Among 220 amputations performed in the hospital, 36 cases of this form of gangrene occurred; while among 419 performed in the Crimea, only 29 cases occurred. Those about to be attacked seldom properly rallied after the operation, and were the subjects of great nervous irritation. The attack itself was quite sudden, the limb became rapidly and immensely distended, and soon after blackened, the general symptoms undergoing frightful aggravation. It was not, indeed, peculiar to persons who had been operated upon, as it proved in some of those suffering from wounds rapidly fatal. The progress of the disease was always rapid and continuous, no kind of temporary suspension of its course ever being observed, and its mean duration in the 65 cases was from twenty-five to thirty hours. The chief feature was an enormous emphysematous distension, which induced compression of the deep-seated veins. The superficial veins were distended with gaseous fluid, which also separated the fibres of the muscles from each other. These last were pale, but not disorganized. The patient always died, a state of indifference or stupor coming on, and all remedies proving useless. Perhaps the affection should rather be called *emphysema of the stump* than gangrene, for there was not the disorganization of tissues met with in ordinary gangrene; on the contrary, they remained distinct and recognizable, and preserved their consistency, relations, and organization.

Hospital Gangrene.—Besides the well-known ulcerative and pultaceous forms of the disease, the author met with a small number of examples of another form, hitherto unknown to him, and which he designates as *caseous*, which attacked stumps nearly healed. The lower angle of the stump became violaceous and engorged, and a small excavation formed, which soon filled with matter of a sebaceous consistency and of a grayish colour. This constantly increased in quantity as the excavation, which was lined by a soft membrane, rapidly augmented in size. The progress of the affection was at once arrested, while it yet seemed local in its operation, by the actual cautery or nitric acid. Hospital gangrene in the two other forms affected many patients besides those who had undergone amputation; and the author regards it as a manifestation of a general

pathological rather than a local condition, the air-passages being the ordinary vehicle of its transmission. He found local treatment of little or no avail, unless the overcrowding could be diminished and ventilation secured, which, under the circumstances, was rarely possible. Of the great number of local applications tried, the *perchloride of iron* succeeded best. In 30 cases, where all other treatment seemed unavailing, amputation was performed, 14 of the patients dying, and 16 recovering. In none of the 30 cases was there relapse of the gangrene, nor did one of them die of the immediate effects of the operation.

Purulent Infection.—This prevailed in the Constantinople hospitals from the period of the battle of the Alma to the end of the campaign, and proved the principal cause of death after wounds and operations. It especially manifested itself in the case of osseous lesions, however slight these might be. Fractures of the shafts of the long bones were always rapidly followed by pyæmia, rendering any subsequent operation useless and mischievous, inasmuch as this but accelerated the progress of the general affection, as of 490 amputations performed in continuity, 192 terminated fatally, while but 32 of 49 disarticulations exhibited a like issue. The author has found no description of treatment useful, and recommends only that symptoms should be combated as they manifest themselves.—*Brit. and For. Med.-Chir. Rev.*, April, 1860, from *Recueil de Mémoires de Médecine et de Chirurgie Militaires*, tom. xxii.

OPHTHALMOLOGY.

29. *Synthesis of Cataract.*—Dr. S. Weir Mitchell, of this city, in performing some experiments on exosmosis, made the remarkable observation that, when syrup was injected into the subcuticular sacs of frogs, a curious form of cataract was produced. (See his paper in the number of this journal for January last, page 106 *et seq.*)

Dr. Richardson, of London, after reading this paper, performed a number of experiments which confirm Dr. Mitchell's observations, and he brought before the Medical Society of London (March 26, 1860) animals presenting cataract in various stages.

The leading facts adduced by Dr. Richardson may be thus summed up:—

"1. When from one and a half to two drachms of syrup are injected under the skin of a frog, the body of the animal first becomes enlarged from exosmosis; and afterwards, in from twelve to thirty-six hours (the enlargement having meanwhile disappeared), cataract, usually in both eyes, is the result. This was confirmed by twenty experiments, and is identical with the result previously obtained by Dr. Mitchell. 2. If the frog, after injection, is freely surrounded with water, it recovers without cataract, a fact observed also by Dr. Mitchell. 3. If, immediately after the lens becomes opaque, the animal is surrounded by water, the cataract may be made to disappear. This was confirmed by three experiments. 4. The cataract, being fully developed, remains permanent; the animal apparently recovering its general health, but being entirely blind. 5. When the cataractous lens is removed from the animal, the opacity may be seen to have commenced either at the posterior part of the lens, spreading circumferentially, or at the anterior part, spreading backwards. The opacity is diffused, but it does not reach the centre of the lens. Similar observations had been made by Dr. Mitchell, except that he traced the opacity from the posterior surface in all cases. The capsule of the lens seems clear. (*Mitchell.*) A similar opacity of the lens may be produced in the eye of a sheep, immediately after death, by the injection of syrup into the anterior chamber. In these conclusions the results of both authors were in the main the same; and, having described them, Dr. Richardson referred to observations of his own. 6. All varieties of sugar—cane, grape, and milk—produce the same result; and frogs were presented, with cataract induced by the injection of syrups of each of these sugars. 7. The form of cataract did not vary in any case. 8. After several experiments, it was found that a syrup

of cane or grape-sugar, of specific gravity 1150, was the most practical; and of milk-sugar, that of specific gravity 1120. 9. Injection of gum-water does not produce cataract. In one case, after the injection of albumen, it was believed that some opacity was produced; but a second experiment did not confirm this result. 10. Sugar-cataract is producible in other animals. In a fresh-water fish, placed in water brought to the specific gravity of 1070 by cane-sugar, perfect cataract was produced on one side, the other side seeming to escape altogether. A second fish, placed in the same solution, lived in it for several hours, but showed no cataract. In guinea-pigs, rabbits, and dogs attempts had been made to produce the sugar-cataract by injecting syrup into the peritoneum. Great difficulties, however, were experienced in these experiments; for it was found that if an overdose of syrup was injected, the animal died rapidly, as from hemorrhage, through rapid transudation of water from the blood into the peritoneal sac. If, again, small quantities were introduced, the sugar was rapidly eliminated by the urine; in which it was found present, in one case, within an hour after the injection of grape-sugar syrup. But, by throwing an ounce of syrup of grape-sugar into the peritoneum of a rabbit, and repeating it after ten hours, distinct opacity of both lenses was produced. The animal, however, died after a third injection, the opacity increasing till death. The rabbit was presented to the society. As to the cause of the cataractous condition, Dr. Richardson considered it purely osmotic; that is to say, it was due to an excessive transudation of water from the lens to the surrounding fluids, upon which the component parts of the lens were disarranged, and opacity was the result. This form of cataract, while it presented the appearances of common cataract, connected itself intimately with the facts which had been made out in the etiology of the disease, as to the coexistence of diabetes and cataract. Dr. Mitchell, at the conclusion of his paper, had noticed the same circumstance; and Dr. Richardson thought its importance could not be overestimated. The coexistence of diabetes and cataract had been pointed out by Mr. France, by Cohen, Lohmeyer, Gunzler, Mackenzie, and Duncan; but especially by Von Gräfe, who had stated that, after examining a large number of diabetic patients in various hospitals, he had found about one-fourth of them affected with cataract. In Dr. Richardson's opinion, however, it was not necessary that the general manifestations of diabetes should always be presented for diagnosis when sugar existed in the secretions; and it might be that there was such a condition as a temporary diabetic state, during which cataract might be developed. Any way, the synthesis of cataract by one process was demonstrated, and the first rational step towards the pathology of the disease had been made. As a point bearing on the treatment of cataract, Dr. Richardson said that inasmuch as temporary opacity produced by exposure of the lens to syrup was removable by an after exposure to water (*i. e.* by changing the position of the medium surrounding the lens), it was worthy of consideration whether an operation for letting out the aqueous humour by a small opening, and refilling the anterior and posterior chambers with distilled water, might not lead to removal of the cataractous condition in the *earliest* stages. The author concluded with some complimentary remarks on the important labours of his transatlantic brother, Dr. Mitchell."—*British Medical Journal*, March 31, 1860.

At a subsequent meeting of the same society (16th of April), Dr. Richardson made a second communication, in which he described a number of experiments made by him with various substances.

"*Glycerin.*—Two experiments were performed with this. In the first, one drachm of glycerin being injected into the dorsal sac of a frog, there was produced, in three hours, posterior opacity of the lens. In a second experiment, a drachm and a half was injected, which caused death in six hours, without cataract.

"*Alcohol.*—A drachm of absolute alcohol, injected into the dorsal sac of a frog, caused death in two hours, with extraordinary shrinking of the body, and distinct double cataract posteriorly. Half a drachm of absolute alcohol, injected into the dorsal sac of another frog, caused death in six hours, with distinct cataract, but, singularly enough, on one side only. The cataractous condition produced by glycerin and alcohol resembled that produced by sugars.

"*Chloride of Sodium.*—By introducing into the dorsal sac of a frog from two to three drachms of a solution of chloride of sodium, of specific gravity 1150, the animal was rendered tetanic; and in twenty minutes the limbs were drawn immovably towards the body, but jactitation of the muscles continued for an hour, when the animal died. Distinct cataract was produced in both lenses before death. In another experiment, a drachm and a half of the solution was used; the same symptoms followed, but more slowly. Distinct cataract resulted. In a third case, one drachm of the same solution was injected; death occurred in two hours, marked cataract having previously appeared. In a fourth case, half a drachm was used; death occurred during the third hour, with the same signs of cataract. In a fifth case, one drachm of solution of chloride of sodium, of specific gravity 1050, was thrown in. In three hours there was distinct double cataract; the animal was immensely shrunken, and the skin was dry, almost like parchment. Placed in water, the animal recovered; and, the water being frequently changed, the cataract entirely disappeared in fifty-three hours. Cataract was reproduced in this animal, again removed, and again reproduced. Dr. Richardson presented the animal with the cataract. The character of the cataract produced by chloride of sodium seems to differ materially from that produced by sugar. The lens is much firmer, and the opacity extends through the whole structure. The lens resembles one that has been boiled.

"*Iodide of Potassium.*—From the chemical analogy between chloride of sodium and iodide of potassium, Dr. Richardson had used the latter salt in the same way; the general symptoms produced were very similar, except that the cataractous condition did not result, at least so far as his experiments had gone.

"*Acid Urate of Soda.*—From the fact of the insolubility of the urates, Dr. Richardson said that he did not expect that a cataract could be produced by the introduction of this substance into the blood. He did not conceive, that is to say, that any osmosis could be established by that salt; but an accidental experiment had led him to try what could be done in this direction. On March 2d of the present year he had commenced to administer to a well-fattened and healthy bitch the acid urate of soda, in doses of two drachms daily, with her food. His object was, to ascertain whether any affection of the joints would be produced. At this time she had taken nearly a pound of the urate, with no effect whatever on the joints; but, within the last three weeks, with distinct and rapidly increasing indications of double cataract. The animal was exhibited to the society. Acting on this suggestion, the author had tried to produce the same effect on frogs, by charging them with the urate of soda, but without any similar result. The occurrence of cataract in the larger animal might therefore be a coincidence; but Dr. Richardson was inclined to think that it was an indirect effect of the urate; that is to say, he believed that the urate was decomposed in the digestive process, and changed probably into a lactate or other soluble salt of soda; which, being conveyed into the blood, produced the cataractous condition. In proof of this he showed that a solution of lactate of soda, of specific gravity 1060, produced cataract in frogs when injected. Dr. Richardson drew the following conclusions from the experiments: 1. In addition to the sugar-cataract, there is producible what may be called a saline cataract. 2. The appearances of the cataracts as produced by different solutions vary; thus the cataract produced by chloride of sodium differs from that produced by grape-sugar. 3. The same cataractous appearance can be produced in a clear lens, after removal from the body, by immersion in solution of sugar, salines, etc. 4. As the cataractous appearance is modified by the density of the producing body, and is removable by reversing the conditions which have led to it, and as it is producible in a clear lens removed from a body, it is a demonstration that the cataract induced in the different animals is a purely physical—that is to say, osmotic—change."—*Ibid.*, April 21, 1860.

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30. *Dislocation of the Lens, the Effect of Vomiting eight days after Keratonyxis.*—The following case, related by Mr. White Cooper (*Ophthalmic Hospital Reports*, No. X.), is valuable as illustrating the importance of extracting the lens when it has been displaced and hence has become a source of irritation:—

"On Tuesday, October 18, 1852, I operated with the needle on a congenital

cataract in the left eye of Miss S., aged 20. The instrument was used lightly, and the capsule moderately lacerated at its centre; the position of the lens was unaltered, and so little irritation followed, that at the expiration of a week the eye appeared to have recovered.

"On the eighth day, however, she was attacked with obstruction of the bowels, attended with so much irritability of the stomach that for forty-eight hours everything was rejected by vomiting. It was not until after the administration of ten grains of calomel and repeated doses of purgative medicine that a passage through the bowels was obtained; then an enormous quantity of offensive fecal matter came away.

"On Thursday, the 27th, I was sent for, and found the eye in the following condition: The lens had been dislocated, and was pressing the iris forward, obliterating the anterior chamber and partly filling the pupil, which was so widely dilated that the iris was reduced to a mere circular strip. The conjunctiva and sclerotica were acutely inflamed, and there was intense neuralgia of the branches of the fifth pair on that side of the head and face.

"I at once proposed to place the patient under chloroform, and extract the lens; but this proposition did not meet the approval of the patient or her relatives; calomel and opium were therefore administered, leeches applied, and general antiphlogistic treatment adopted. Nevertheless, the inflammation became so acute, and the patient's sufferings so intense, that on the following Monday the required permission for the operation was granted. The patient having been chloroformed by Mr. Potter, I carefully made an incision with a broad iris knife through the cornea near the outer margin, and carried the point into the lens, which was broken up by a few movements of the instrument; the knife was then somewhat turned on its axis, whereby the edges of the wound were separated, and the bulk of the lens was instantly expelled from the eye; the remaining fragments were easily removed with a scoop. The lids were then closed, secured with plaster, and cold water dressings applied.

"From this time the cessation of pain was complete; the patient, who had been five nights deprived of rest, slept profoundly more than ten hours; the inflammation, which had been intense, speedily subsided under simple treatment, and at the expiration of a week scarcely a trace remained. The iris, however, continued paralyzed, and the pupils as widely dilated as when the lens was removed; this state of things yet continues, and, according to my experience, many months may elapse before the activity of the iris is restored. With this exception, the eye is now (November 21) well, and the vision improving daily. With a three-inch lens large type can be read with facility.

"This case forcibly illustrates the advantage arising from extraction of the crystalline lens when displaced, and causing irritation. Instead of the existing inflammation being aggravated by the wound inflicted on the eye, and the use of the scoop, there was from that time a diminution of all the symptoms; and though it would have been better to have performed the operation when first suggested, as the iris would thereby have been relieved from the injurious pressure which for the time paralyzed it, the retina has fortunately received no injury, and a condition of mydriasis is the worst result which has followed the unfortunate displacement of the lens."

MIDWIFERY.

31. *On the Use of the Forceps in Face Presentations.*—Dr. VON HELLY, teacher of obstetrics in the University of Prague, presents a valuable analysis of the mechanism and treatment of face presentations. Starting from the familiar fact, that these are more tedious than labours in which the vertex presents, he says the reason lies in the circumference with which the head enters the pelvis, and in the unusual relations which the peculiar position of the fœtus induces. The head of a fœtus born by the vertex, is lengthened in the longest or diagonal

diameter, *i. e.*, from chin to vertex; the vertex is the highest point, towards which the roof of the skull forms a gradually inclined plane from the forehead. The diagonal diameter surpasses the straight one, from forehead to vertex, by an inch, so that the two diameters form two lines which, when the head is looked at in profile, form an irregular triangle. The occiput of a head born by face presentation appears drawn out or lengthened in the direction of the straight diameter; the roof is but slightly arched, is flat, and ends in a sharper angle at the forehead. The difference between the straight and diagonal diameters disappears, so that the two lines, one drawn from forehead to vertex, the other from chin to vertex, form a nearly isosceles triangle. Measurements have been made in reference to this point in 32 cases; these give:—

The straight diameter was longer than the diagonal in				2	cases.
"	"	equal to	"	12	"
"	"	$\frac{1}{4}''$ shorter	"	13	"
"	"	$\frac{1}{2}''$ "	"	3	"
"	"	$1''$ "	"	2	"

The head finds, from the arching of the roof and occiput towards the opposing side of the pelvis, an obstruction to its descent, whence, through protracted uterine contractions, the neck is more stretched, the occiput approaches the back, and the forehead from having been the lowest part is drawn back. When the skull is flattened, and the head has in this manner lost in height, its vertical diameter decreases in length, and so finds room in the pelvic brim, the chin sinking backwards to be on same level as the forehead. When the face approaches the outlet, the chin immediately leaves the side of the pelvis, draws forward near the symphysis, and the neck places itself against the posterior surface of the anterior wall of the pelvis. Most frequently this change from the diagonal to the antero-posterior diameter is effected at the floor of the pelvis. The skull thus enters the cavity of the sacrum; the chin is gradually driven forward under the symphysis pubis, and the face becomes visible between the labia pudendi. Forehead, roof, and occiput roll over the perineum, whilst the head, by revolving on its horizontal axis, is brought nearer to the breast.

Dr. Von Helly cites the well-known experience of L. J. Böer, as proving the efficacy of nature in bringing these cases to an end; and says, that in 58 cases which have occurred in the last few years in the Prague Lying-in Hospital, perforation was performed twice under urgent circumstances, the child being dead, and in two instances the forceps was used.

Dr. Von Helly deprecates attempts to alter the presentation by changing the face for the occiput, or by turning. In the 58 cases of the Prague Hospital there was a proportion of 18.19 per cent. of dead-born children, calculated in this wise: 2 were delivered after perforation, 1 was born putrid; these three being subtracted, there remained 55 births. Of these 10 gave dead children The cause of this unfavourable result to the child lies in the compression which the skull and brain undergo; in the obstruction to the circulation of the brain, caused by the diminution of the calibre of the vessels of the neck under the great stretching produced; and, above all, by the long continuance of these dangerous conditions occasioned by the unusual protraction of the labour. Injury of the spinal marrow he looks upon as theoretical, and says he has found few opportunities of observing in the autopsies cerebral apoplexy, although there may be congestion of the brain and membranes.

Before the dilatation of the os uteri, the author deprecates interference. In cases where the necessity for aid arises, and the os is open, the question, he says, is in what relation the forceps is to be applied to the face presentation, and how it is to be applied so as to entail no bad result for mother or child. The long forceps ought not to be applied when the head is still high; at this stage the circumference and resistance of the head are still great; the operation is very difficult, the prospect of the child's life very small; whilst danger is incurred by the mother from the liability of the instrument to slip. Above the brim the double-curved forceps must be applied in the transverse diameter; one blade will lay on the forehead and crown, but the other can get no secure hold on the face and neck without so compressing the latter part as to destroy it. If urgent

circumstances call for delivery when the child is undoubtedly dead, perforation is to be resorted to.

When auscultation declares that the child is alive, nothing but accidents threatening the mother can justify tentative applications of the forceps; and as soon as conviction is obtained that further force is dangerous for the mother, perforation is indicated. The author agrees with Mittermaier and the greater number of obstetric practitioners in deciding in favour of perforation even when the child may still be alive, rather than with those who would wait until the lives of both mother and child are imperilled. But when the face has descended into the lower part of the pelvic cavity, the relations are so changed as to be more favourable for the forceps: one blade can be laid in opposition to the sacro-iliac synchondrosis, the other to the foramen ovale. If the chin be at the symphysis, the application of the forceps is of course still easier.

The following two cases are important:—

CASE I. A woman who had borne eight children was in labour on the 9th of September at term; the liquor amnii had escaped. Pains first came on next day, weak, and rare. Accustomed to quick labours, and getting anxious, she pressed the midwife to apply the forceps. This was done on the 11th, and abandoned after fruitless attempts. Another and a third attempt was made on the following day by several physicians, which were equally fruitless; and the patient was brought to hospital. The countenance was blanched, the features sunk, extremities cold, pulse scarcely felt, abdomen painful and meteoric, uterus unevenly distended, the lips of the os uteri swollen, hanging flaccid in the vagina. The head was in the brim, face presenting in the transverse diameter, the forehead to the right and lower down. The presenting eye was hanging out of its socket; the epidermis came off the face in shreds. The patient was a little revived from her state of exhaustion by hot wine and musk. The trepan perforator was applied, and a large putrid child extracted by forceps. On removing the placenta, the previously diagnosed rent in the uterus was felt. Death took place in the evening. Section revealed a rent in the fore and left side of the cervix, and a conjugate diameter of 3″ 11‴.

CASE II. A woman who had borne four living children naturally was in labour at term. A surgeon called in, applied forceps an hour after escape of waters, and as this slipped, tried to turn. Flooding appeared, and the patient was brought to hospital. The pulse was small, quick; abdomen distended with gas; uterus contracted on its contents; genitals swollen. In the vagina was the right foot and right arm. Higher up was felt the face on the brim. The head was prevented from descending by the lower extremities being dragged behind the head, whilst the descended arm was hemmed in between the head and the left side of the pelvis. The line of the face lay in transverse diameter, forehead to the right. The presenting arm was replaced with some difficulty, and so much room was gained that the forehead could be perforated by Kiwisch's instrument. The cephalotribe slipped off. By pulling at the foot extraction was at length effected. The fœtus, apparently not long dead, weighed without brain 6¾ pounds Vienna civil weight. The mother collapsed after the operation, and died after four days under symptoms of peritonitis. Section revealed purulent exudation in great quantity, covering the peritoneum, and here and there between the lamellæ blood-effusion. The iliac part of the peritoneum was torn through; gangrenous endo-metritis; left half of cervical canal torn through, the rent gaping, and opening into abdominal cavity.—*B. and F. Med.-Chirurg. Review*, April, 1860, from *Vierteljahrschr.*, 1859.

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32. *Experience in Face Presentations.*—Dr. SPAETH'S experience in face presentations may be usefully given in illustration of the foregoing. He found it occur seven times in 14,424 cases. At first the head is mostly in transverse direction, the greater fontanelle being to right or left. The further mechanism of labour always proceeded in like manner—namely, the head turned in the pelvic cavity with the face forwards, and at the outlet the upper lip was fixed against the symphysis; the occiput then rolled over the perineum, when at last the mouth and chin emerged from under the symphysis. The configuration of the head was always the same, the forehead strongly projected forwards; the sides

compressed unsymmetrically, so that the side which was turned to the symphysis during the passage through the brim appeared concave in the direction from above downwards. Of seven children, three only were saved; in two cases perforation was necessary—one was dead-born, one died quickly after birth. One mother died of metrophlebitis, which set in during labour. The rest recovered; but three suffered from gangrenous ulceration, the result of the pressure during labour; two of these suffered in addition from endo-metritis.

The case should be left as long as possible to nature. If forceps become necessary whilst head is still high, it must be applied in transverse direction. When the case is complicated with moderate conjugate contraction, $3\frac{1}{4}$ to $3\frac{1}{2}''$, Spaeth advises delivery by turning.—*Ibid.*, from *Œst. Zeitschr. f. Prakt. Heilkunde*, 1859.

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33. *Observations on External Turning.*—Professor Carl Esterle gives an elaborate exposition of the subject of external turning. In some of the applications of the operation his views and experience are extremely interesting. He commences by citing the opinions of Wigand, Matteo, and Stoltz; and then considers the conditions which favour spontaneous evolution, and the manner of operating. The patient is to lay so as to relax the abdominal muscles as much as possible. The method pursued by nature in spontaneous version is to be closely followed. The partial peripheral contractions of the uterus which diminish the transverse diameter are to be replaced by lateral compressions, which must gradually merge into a compressing stroke on one side near the fundus, on the other near the os uteri. This is much aided by gentle blows applied alternately to the apices of the ovum. These blows may be repeated more quickly at a later period by acting on the one side upon the head, whilst with the other hand a fixed point is maintained upon the opposite extremity. This will not always succeed in removing the head at the first attempt. When effected, the longitudinal position is to be maintained. This is to be done by the recumbent posture and bandages. The author's observations were made upon 500 pregnant women, who were mostly examined in the seventh and eighth months. Amongst these were detected 22 complete transverse presentations. Nine were rectified spontaneously; in 10 external turning was carried out; in 2 turning by the head was effected by combined internal and external manipulations; and in 1 case internal turning brought down the breech. In the 10 cases of external turning, placenta prævia was present once; pelvic contraction of the first degree twice; excessive obliquity of the uterus three times. In some instances the cause of the cross-presentations was probably strong compression of the abdomen for the purpose of concealing pregnancy; and perhaps also the weight of the clothes, which, as countrywomen wear them, presses almost entirely on the fundus uteri.

We give three of his cases as examples of the practice:—

Case I. A woman, pregnant thirty-four weeks; head high to left; back forwards, breech towards right ilium, liquor amnii copious. It was sought to bring the head down, which was so far successful that it was brought within reach; but as soon as the pressure was removed it receded. After two unsuccessful attempts to retain the head, the breech was brought down. This was effected without much difficulty, and was maintained. On repeated examinations, the longitudinal direction of the fœtus, with the breech presenting, was constantly verified. Twelve days after the last examination labour began; the occiput was presenting in first position, and the labour proceeded normally.

Case II. Pregnancy near termination. Twins diagnosed; one fœtus in first head position, and one in cross-presentation, head to the left, back backwards. During labour the first fœtus had to be delivered by forceps. External turning was resorted to to rectify position of the second. The head was easily brought down, and whilst assistants by external pressure maintained it *in situ*, the membranes were ruptured, and the head was born in the first position.

Case. III. A woman, pregnant thirty-two weeks. Head high to the right; back backwards. External turning proved very difficult and tedious; but by persevering especially with the methodical strokes, it succeeded in placing the head in the second position. Upon this the customary bandage was applied,

and recumbency on the right side prescribed. After a short time, however, the woman was unable to bear the bandage, or to lay in the position ordered. When examination was made four days after, the head had moved, but not quite back to its original place; it had passed over to the opposite side, over the left crista iliaca. The causes of this side movement were the great quantity of liquor amnii, the great flaccidity of the uterine walls, and above all, a marked inclination of the uterus to the right, in consequence of which the breech, which had been brought to the fundus, continued to move in the direction of this inclination, and was supported by the laying on the right side, as ordered. External turning was performed a second time successfully.

[The chief field for the useful application of this proceeding appears to consist in the rectification of cross-presentations during the latter weeks of gestation. It is, of course, a substitute for the more severe and hazardous operation of internal turning. It deserves more attention than it appears to have received in this country.—REP.]—*Ibid.*, from *Schmidt's Jahrb.*, 1859.

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34. *Cases of Prolapsus of the Membranes in Labour.* By DRS. LEOPOLD and CREDE.—Dr. Leopold was called to a woman who had been in labour for several hours, the midwife being puzzled by an unusual descent of the bag of membranes. A pyriform, tense, bluish bladder, six inches in length and two inches in breadth, projected from the genitals, the os uteri being expanded to the extent of one and a half inch only. As this prolapsus might give rise to separation of the placenta and spasmodic irritation of the os, the bag was punctured with a knitting-needle so as to allow of a gradual discharge of the waters, and leave the position of the child undisturbed, this having been ascertained to be normal. As it became emptied it gradually filled again, and was therefore cut away piece by piece with the scissors. The os uteri becoming more relaxed, the pains, which were feeble, were sought to be stimulated by ergot and external friction. The pains continuing feeble, and the child's mouth presenting, while a hand sometimes passed down beside it and some hemorrhage being present, turning was executed. The delivery was accomplished with some difficulty, but the child, at first stillborn, was speedily restored.

Dr. Credé states that in his large practice he has only met with one case similar to the above, and observes upon the fact of how little the circumstance has been alluded to in the text-books. In his own case, the bag consisted only of the amnios, which had passed through an aperture of the chorion (remaining above the os uteri), and constituted a longish, distended bag projecting five inches from the genitals. The case occurred in a primipara, and the presentation was facial. The dilatation and presentation of the membranes proceeded regularly for awhile, when a little liquor amnii having become discharged, it was found that the chorion had burst. During the next pains, the amnios passed suddenly through the entire vagina, and projected five inches beyond the genitals. Passing the finger behind this bladder, its pedicle could be followed like a membranous cord into the pelvis. During the movements of the patient the bag burst, and its contents were discharged. The remains of the membranes which had constituted it, were ligatured with a red tape, in order to be able to trace their disposition afterwards. The amnios was found to have become completely separated from the chorion, a circumstance very possible when there is a very loose gelatinous layer deposited between the two membranes, as was in this instance the case. The pains being very feeble, the labour was terminated by the forceps.—*Med. T. and Gaz.* Ap. 21, 1860, from *Monatsschrift für Gebürtskunde*, Bd. xiii.

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35. *Twin Births.*—Dr. E. VON SIEBOLD gives (*Monatsschrift für Geburtskunde*, Bd. xiv.) an account of the twin births which have occurred at the Göttingen Midwifery Institution since its establishment. These amount to 89 in number, occurring in 7139 births, which have taken place between the years 1792 and 1859—*i. e.* 1 twin-birth in every 80 births. According to Veit's statistics, the proportion is in Prussia 1 in 89, in Wirtemburg 1 in 86, and in Saxony 1 in 78. In relation to different towns, great varieties in the proportion have been observed (as stated by Kürschner in his thesis), as 1 in 158 at Naples,

1 in 126 at Palermo, 1 in 118 at Lüneburg, 1 in 110 at Marburg, 1 in 96 at Hamburg, 1 in 88 at Berlin, 1 in 86 at Leipzic, 1 in 85 at London, 1 in 84 at Paris, 1 in 74 at Vienna and Würzburg, 1 in 68 at Dresden, 1 in 62 at Heidelberg, 1 in 72 at Prague, 1 in 75 at Philadelphia, 1 in 57 at Dublin. How rare is the occurrence of *triplets* may be judged of from the statistical account of Prussia, given by Hoffmann, from which it appears that, between the years 1826-34, there occurred in Prussia 4,467,031 single births, 52,384 twin-births, 659 triplet cases, and 11 quartet cases. In the year 1840, too, there occurred 574,293 single births, 6381 twin births, 72 triplets, and 1 quartet.

The author divides his analysis into two parts, the first comprising 35 twin-births, attended by Osiander between the years 1792 and 1822; and the second comprising 54 cases, attended by Mende and himself, between the years 1823 and 1859. With respect to the first series of 35, the following positions of the children are indicated. In 19 cases the head presented in both children, in 6 the head and breech, in 4 the head and feet, and 2 the breech and feet. In one case the feet presented in both children, and in another case the breech presented in both. In one case, one child presented the head and the other the shoulder; and in one case the position was not accurately ascertained. In the 35 cases, *i. e.* 70 children, only 28 children were delivered by leaving the case to nature, the others being removed either by the forceps, turning or extraction of the feet—meddlesome midwifery being strongly inculcated by Osiander in twin-cases, as affording the practitioner an admirable opportunity of practising midwifery operations! The proportion of stillborn children is not stated.

Of the second series of 54 twin-births, the following particulars are given. There were head presentations of both twins in 22 cases, head and breech in 11, head and feet in 10, head and shoulder in 5, breech in both in 2, breech and feet in two, the feet in 1, and the breech and shoulder in 1. Adding together the two series of cases, the following results are obtained:—

Presentation of the head in both children	41
Head and breech	17
Head and feet	14
Head and shoulder	6
Breech and feet	4
Both breech presentations	3
Both foot presentations	2
Breech and shoulder	1
	88

Of the 108 children born in the 54 twin-births, 83 were so by the sole efforts of Nature—interference by means of the forceps, by turning, or by extraction, only taking place with respect to 26 children—a marked contrast to the practice pursued by Osiander. In 87 of the conjoined cases, 2 boys were born in 28, 2 girls in 17, and a boy and a girl in 42; there being 99 boys and 77 girls in 178 children.—*Med. Times and Gaz.*, May 5, 1860.

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36. *On Special Position and the Obstetric Binder as Aids in the Treatment of Impeded Parturition.*—Mr. Robert Hardey read before the Obstetrical Society of London (March 7, 1860) a paper on this subject, in which he advocated the sedentary position on chairs, to which his attention had been first directed, in 1827, under the direction of the late R. M. Craven, Esq., Sr., of Hull. From that period to the present he had adopted this mode of management (and had recommended the same to his obstetric class at the Hull and East Riding School of Medicine) in all cases where the difficulties to be overcome demanded more than ordinary efforts for the accomplishment of the delivery. The author observed that in our treatment of labour generally we were apt to ignore the important fact that the activities of parturition were dependent altogether on muscular power—*ergo*, all agents which sustained and increased motor force were real benefits to the parturient female, and *vice versâ*. Of these excitors of motor power, two of the most valuable were the sedentery posture and obstetric binder. Mr. Hardey next pointed out the advantages and disadvantages

resulting from a variety of parturient positions—viz., standing, reclining on the back, prone, and horizontal postures, and concluded this part of his subject by a strong recommendation of the sedentary posture on or between two chairs. The plan adopted was to secure the fronts of two chairs to each other, and separate their backs from one and a half to two feet; to place the patient well over or between these, with her knees firmly pressed against the side of the bed, her chest fixed by holding on to the foot-post of the bed, and her feet placed firmly on the floor. The accoucheur sat or knelt behind his patient, who remained on the chairs till the difficulties in the case had been overcome, which was evidenced by the emerging of the ossa parietal from behind the perineum. The woman was to be then removed to bed, and finally delivered in the ordinary position. Before seating the patient, her abdomen was to be carefully sustained by a broad binder, to which Mr. Hardey attaches far greater importance than is conceded to it generally. The views advanced were illustrated by diagrams and drawings. In every case, before adopting the sedentary posture, the part presenting should be somewhat within the pelvis, and the os uteri half dilated. The practice was contra-indicated by—1st, impending systematic exhaustion; 2dly, inflammation in any vital organ or part more immediately associated with parturition, serious uterine hemorrhage, previous puerperal convulsions, version presentations, a pulsating funis, and extreme pelvic obliquity. The agents named, the author maintained, secured to the parturient female in impeded labours—*a*, the very important aid derived from gravitation in the uterine ovum; *b*, the putting forth under the most favourable circumstances the highest amount of motor energy of which nature is capable; *c*, the bringing the abdominal and pelvic axes into the same obstetric plane; and *d*, the imparting great support to the fundis uteri in its contractions by the obstetric binder. He strongly recommended the use of the binder before delivery in a variety of cases, independent of its connection with the chairs, as an agent which usually accelerated the birth of the infant in a remarkable manner. The parturient conditions demanding the use of the chairs and binder were those arising from both mother and infant, in which unusual delay or difficulty presented themselves. The treatment of these was illustrated by cases, illustrative of the efficacy of the plans advocated. The period required for the delivery varied with the obstacles to be overcome, from one to two hours being ordinarily sufficient, with an interval of repose on the bed. In conclusion, Mr. Hardey commended the practice to his professional brethren from the following considerations: 1st, its great simplicity; 2dly, its entire freedom from danger *per se;* 3dly, its very great potency; 4thly, its testing the ability of nature to accomplish the delivery at a period sufficiently early to enable the accoucheur to decide on the use of instruments before material damage had been sustained by the maternal tissues; 5thly, the conscious satisfaction experienced by the woman at feeling her labour is progressing towards completion; and, lastly, its being a great economist of professional time, which to medical men is property of the most valuable description.

Mr. H. impressed upon the meeting that he only recommended the sedentary posture in certain cases attended with difficulty, inasmuch as the ordinary position on the left side was admirably suited for the greater number of natural labours.—*Med. Times and Gaz.*, March 17, 1860.

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37. *Ruptured Perineum.*—Mr. I. B. BROWN related to the Obstetrical Society of London (May 2, 1860) a case of ruptured perineum, and birth of the child between the os vaginæ and anus. In this case the child's head rested on the perineum, but delivery was delayed, though the pains were very violent, owing to the non-dilatation of the os vaginæ. While a friend of the attending practitioner went to fetch the forceps, the perineum gave way between the os vaginæ and anus, and the child was expelled completely through the opening. A fortnight afterwards Mr. Brown pared the edges of the wound, which remained unhealed, and cut through the fourchette. Iron-wire sutures were introduced, and the parts all healed completely.—*Med. Times and Gaz.*, May 19th, 1860.

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38. *Puerperal Convulsions successfully treated by Subcutaneous Injections of Morphia.*—By Prof. SCANZONI, of Wurtzburg. Since the attention of the

medical profession was first directed by Dr. Wood of Edinburgh, and more lately by Hunter and Béhier, to the advantageous effects of subcutaneous injection, especially of narcotics, Professor Scanzoni has employed this method with success in numerous cases of neuralgia, hyperæsthesia, etc.; but he attaches especial importance to the following case of puerperal convulsions, because it seems to prove, in accordance with the views laid down by Hunter, that the subcutaneous application of narcotic agents furnishes a means of acting on abnormal irritations of the brain with greater rapidity and certainty than the administration of the same remedies by the mouth. It will, doubtless, be admitted that opium, and its different preparations, deserve the first place in the treatment of puerperal eclampsia. In his own experience, the observation of a large number of cases has convinced Professor Scanzoni that a kind of intoxication produced by opium leads with more certainty to a favourable termination than any other means recommended in this terrible disease. But, unfortunately, it is not always possible to administer a sufficient quantity of opium or morphia; sometimes the comatose condition of the patient, at other times the rapid succession of paroxysms, prevents administration by the mouth; and opiate enemata are occasionally rejected as soon as they are received. The subcutaneous injection, however, supplies the means by which these difficulties may be overcome, and a sufficient quantity of opium introduced into the system to render its effects certain. Numerous experiments have convinced the author that, although the effect of this method is not always persistent (the neuralgiæ, for example, are not always cured by it), yet there are constantly produced, within a short time, often a few minutes, after the injection, certain phenomena, which can leave no doubt as to the action of the opium upon the brain. Such symptoms are drowsiness, giddiness, headache, sickness, feeling of constriction in the throat, even vomiting, and depression; or, if the dose is large, somnolence. These facts, taken along with the known effects of the subcutaneous application in delirium tremens, mania, chorea, tetanus, etc., induced him to try the same treatment in puerperal convulsions, and with the most satisfactory results. After three injections of meconate of morphia there occurred only two attacks in nine hours, while previously there had been three attacks in an hour and three quarters. This diminution of the convulsions after the injections is so much the more remarkable, since experience has shown that, as a general rule, the paroxysms become not only more violent, but follow at shorter intervals as the labour advances. And although the author does not imagine that he has discovered in the subcutaneous injection an infallible panacea for this dreadful malady, he is of opinion that the following case should induce physicians to give this means a trial:—

Case.—D., aged 21, primipara, strong and robust, was brought into the lying-in ward at a quarter to eight o'clock on the morning of June 8th, 1859. Labour had commenced in the night, and she had been seized with nervous paroxysms and loss of consciousness; no account was given of the nature of the attacks; the patient remembered nothing of what had occurred during the night. The whole body, and especially the lower extremities, were œdematous; on the right side the tongue showed marks of being bitten by the teeth; the uterus corresponded to the pit of the stomach, and seemed sufficiently consistent; sounds of the fœtal heart distinct. On examination, the os uteri was dilated to the size of a sixpence, the bag of waters was partly formed, and the head presented; the urine was very albuminous, and exhibited under the microscope numerous fibrinous cylinders. At eight o'clock she was seized with a second convulsive attack, which was of a very marked character, and lasted for some minutes. On recovering consciousness she could answer questions, although slowly. A third attack succeeded at a quarter to nine, a fourth at a quarter to ten, a fifth at a quarter to twelve, and a sixth at five o'clock—the last the most violent. After the fourth paroxysm consciousness did not return, and the breathing became stertorous. At ten o'clock she was bled to about eight ounces, an enema with 25 drops of laudanum was given, the body was put into a warm bath, while cold irrigation was applied to the head. As opium could not be administered internally, a solution of the meconate of morphia was now, at three different times, injected under the skin, the quantity amounting in all to about 10 grains (75 centigrammes) of opium. The labour advanced very slowly. At three

o'clock next morning the membranes burst; the os dilated to the size of a half crown; the head still high up above the brim; sounds of the heart very distinct. After this period the dilatation went on more quickly; at seven o'clock the os was larger than a crown piece, very extensible and dilatable, the head high up and immovable; complete loss of consciousness, profound coma. In these circumstances, which left little hope of saving the patient, and in spite of the high position of the head and the incomplete dilatation of the os uteri, it was decided to employ the forceps. Their application was by no means easy, but the extraction presented no difficulty. After a few tractions, a fœtus was born, which breathed feebly at first, but soon began to moan vigorously; the placenta followed. During the operation there was no paroxysm. Some wine and 10 drops of tincture of amber and musk were now given to the patient, which revived her a little, but did not restore consciousness. At eleven o'clock, a seventh attack came on, but was slight and short, after which she became excited, and tried to escape, but towards morning she grew calm. At nine in the morning she could answer questions put with a loud voice. During the whole day she remained like a drunken person; pulse 128. The musk was stopped; nothing but lemonade given. Towards evening the abdomen was somewhat painful. During the night there were several slight attacks of mania; she constantly attempted to escape. In the morning she answered rationally; pulse 108. The œdema had diminished, the abdomen was still tender; there was difficulty of breathing; and numerous râles, fine and coarse, in the lungs. Warm bath, lemonade, expectorants, were prescribed. In the evening the patient was completely herself again; pulse 132. June 11th and 12th. She slept well during the night, the expectoration becoming easy, and the pain of the abdomen relieved by fomentations and poultices; pulse 120; the urine contained little albumen, and no fibrinous cylinders. June 13th. Good condition; œdema gone, abdomen soft; some incontinence of urine during the night was relieved by leaving in a catheter. All medicines were now suspended; the patient was put on good diet; and ordered to take every morning a glass of chalybeate mineral water. On the 17th there was no albumen found in the urine; and on the 21st the patient left the hospital with her child, being advised to continue the use of steel for a considerable time.—*Ed. Med. Journ.*, May, 1860, from *Bull. Gén. de Thérap.*, March, 1860.

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39. *Morning Sickness; its significance as a symptom.*—Dr. T. INMAN, of Liverpool has published (*British Medical Journal*. 24 March, 1860) an interesting paper on this, sometimes, very troublesome affection.

"All pregnant women," he remarks, "do not have the symptom in question: many escape it entirely; others have it at one time and not at another; some of those who escape it have flatulence and other signs of dyspepsia; others, simple faintness. If we dive still deeper, we find it common amongst town-bred women, and rare amongst the healthiest of the rural population, We find, as I have had repeated opportunities for observing, that a lady who suffers from it in a town is comfortable the day after she resides in the country, and is ill again the day after her return; and that, for such a one, a prolonged residence in a pure air prevents morning sickness altogether. It is clear, then, that women are not sick simply because they are in the family way; there is something required in addition to that, to produce the vomiting.

"We next note that the sickness is most common in the morning; but it is not generally present so long as the woman is lying down; nor if the recumbent posture is continued, will it come on. But no sooner is the erect posture assumed, than nausea comes on, and increases until vomiting follows. Now, as we cannot see any material difference in the circulation through the stomach when a person is standing and lying down, we infer that we must carry our observation to some other part of the body likely to be influenced by change of posture.

"A moment's consideration points us to the brain, as being the organ most affected by change of posture. A hundred cases occur to our recollection of faintness and sickness being produced in delicate individuals by assuming the erect posture; and we also remember that vomiting is a common sign of 'water in the head.' But it is a tolerably certain fact that very few delicate people do

have morning sickness when they get up; consequently, a change in the cerebral circulation alone will not be sufficient to account for it.

"We now attempt to get some farther insight into the causes which produce it, by examining under what circumstances it comes on in males, children, and elderly people. A gentleman, with his wife (who was not *enceinte*), when crossing the Atlantic, both had this symptom to a marked degree. During the day, they could stand the motion of the steamer pretty well; they never could do so before breakfast. Champagne did more to relieve them than anything else. The sickness came on invariably, as soon as they attempted to stand up. Mr. W., aged 56, consulted a friend of mine for what he called dry vomiting. It came on regularly every morning as soon as he got up; and he facetiously observed that, if he were a woman, people would say he was pregnant. The man was an habitual spirit-drinker, and indulged heavily over night; and there was reason to believe that he had an ulcer in the stomach. A few days ago, I was consulted by a clergyman living in the country; and one of the most prominent of the symptoms complained of was nausea as soon as he got out of bed, which was very frequently (twice or three times a week) accompanied by actual vomiting; and, as is common in pregnancy, a little mucus alone was ejected, and some flatus. In his case the disease seemed to be ulcer of the stomach, or atonic dyspepsia. Turning to Dr. Brinton's interesting treatise on this complaint, we find: 'Lastly, in those rarer instances in which the act of vomiting comes on quite independently of the ingestion of food, for example, shortly after rising from a night's sleep . . . . the vomiting, which is often periodic, is frequently connected with habitual drunkenness, especially with the collapse that follows a debauch' (p. 76). The clergyman was on his way to Southport when he consulted me, and he has subsequently called to say that the morning sickness has left him since his residence there.

"We may next remark, as a matter of fact, that children and delicate people generally have anorexia in the morning, even if they have not vomiting; and sometimes they are totally unable to eat anything at breakfast, from a feeling of faintness or sickliness. This is a tolerably sure indication of deficiency of digestive power in the stomach and in the body generally, and is best met by the use of some mild stomachic and fluid food.

"When we inquire how much the condition of the uterus influences the vomiting, we find that the sickness is not produced by simple enlargement of the organ; for it is not a common sign during the gradual distension that takes place from accumulation of the catamenia in cases of imperforate hymen; nor is it from pressure in the pelvis, direct or indirect, for the symptom is generally absent from first to last in ovarian dropsy; nor is the sickness produced by growths within the cavity of the uterus, for it is not a common sign in case of uterine polypus, etc.

"We cannot lay much stress upon these facts; yet we may remark, that morning sickness accompanies the formation of moles, etc., which are supposed to be the result of an act of generation; and that it also accompanies *extra-uterine* pregnancies, as far as we can judge from the few cases recorded, quite in the same proportion as the intra-uterine.

"In the causation, then of morning sickness, we infer that 'uterine sympathy' does not hold so prominent a place as the formation of a new being. But neither the one nor the other hold sufficiently prominent a place to give to them the most important rank, inasmuch as neither one nor other produces the sickness, unless other conditions are present.

"We ask, next, what these are? As the symptom in question does not occur in perfectly healthy and strong women, we infer that its occurrence depends upon some deterioration of vital power. As deterioration of vital power involves, to a greater or less extent, deterioration in all organs of the body, we infer that, in the cases in question, there is deficiency of vital power in the brain, and in the stomach.

"If this inference be true, we shall find that the best remedies for morning sickness will be those which improve the condition of the patient generally, those which improve the steadiness of circulation in the brain, those which improve

the tone of the stomach, those which deaden the sensibility of the organ which has been preternaturally increased by debility."

With this view, Dr. Inman recommends that pregnant women "should take something ere they get up, and allow sufficient time for this to have its influence on the stomach in dispelling flatus, on the circulation generally, and on the heart's power, enabling the latter to keep up the necessary volume of blood in the brain when the erect posture is assumed. I believe the best thing which can be adopted is a tumblerful of milk with a tablespoonful of brandy or rum in it; it is food and stimulant combined. If this be objected to, hot coffee, cocoa, or tea will be of service, though all are too poor in quality to effect all we wish. Where the sickness is very distressing, champagne (or sparkling gooseberry) answers better than anything else. Throughout the day, everything in the way of *work* must be carefully noted, and its effects marked; so that the patient may ascertain whether or not it is beyond her strength to do it. If the strength permit, exercise in the open air is useful up to a certain point, beyond that it fatigues, and makes the sickness worse. In bad cases, rest in bed is absolutely necessary for a time. Such tonics as steel, quinia, glycerine, and alcohol in medicinal doses, are each useful. Opium, from its influence on the brain and stomach, is specially advantageous. Of the special remedies I need scarcely speak, they are more or less familiar to all.

"The preceding observations go far to explain those curious cases we occasionally meet with where husbands suffer from morning sickness as well as their wives. I was once seriously consulted, by a recently married gentleman, for morning sickness. He wished to know whether it was usual for husbands to be affected sympathetically with their wives, and, if so, whether it was best to let it alone or try and prevent it. His own wife, he said, was pregnant, and suffered much pain from this symptom, and latterly he had suffered too. I ascertained that he was a man of nervously anxious temperament, unable to see suffering with equanimity; that he was passionately fond of his wife, and greatly distressed at witnessing her morning suffering. Hence he became first faintish, and then sick. I recommended something for his wife, which had the desired effect; and when her suffering ceased, his sympathy being no longer roused, his stomach was quiet. Such an explanation, however, does not apply to an account I have received from a very trustworthy medical friend, who told me that a lady patient once told him in sober, serious earnest, that in two out of four pregnancies, she was first made acquainted with her condition, by her husband suffering from morning sickness, herself being quite free therefrom. There was no evidence to account for this curious state of things, and he could only surmise that the affair was accidental—due either to some temporary anxiety, casual marital excess, or some transient cause enfeebling the condition of the stomach."

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40. *Pepsine in Vomiting of Pregnancy.*—M. CORVISART recommends pepsine in the uncontrollable vomiting of pregnant women. M. Baudot relates (*L'Union Méd.*, April) two cases in which he employed it with the best effects, and M. Gentiles relates (*Lancet*, May 5th) one, a very severe and obstinate case, in which ten grain doses acted like a charm.

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41. *Fœtal Auscultation.*—Dr. FRANCIS ADAMS maintains (*Med. Times and Gaz.*, Dec. 17, 1859), that the following points have been satisfactorily determined in regard to fœtal auscultation:—

"1. That the cases of spurious pregnancy related by Dr. Simpson, in which eminent auscultators fancied they could detect the double sounds of a fœtal heart when there was none present, and the various other instances of a similar character related above, all go to prove that this process of diagnosis is not at all to be relied upon as a test of pregnancy.

"2. That the leading facts of the case are so differently stated by different individuals as to put it beyond doubt that these statements must have been much modified by previous impressions and modes of faith.

"3. That since soufflets are often heard in the case of pelvic tumours, after delivery, and when the fœtus is putrid and the placenta morbid, they cannot be regarded as placental nor as indicative of pregnancy at all.

"4. That the sounds detected in the uterine region, unless double, cannot have been cardiac, nor unless double the arterial pulse of the fœtus, can they have been connected with its heart, consequently that such an amount as from 140 to 160 single sounds cannot be referred to the fœtal heart.

"5. That one of the authorities for fœtal auscultation admits candidly that even this number of 140 double, or tic-tac, sounds is often not present in pregnancy, and, on the other hand, that it is sometimes present when there is no fœtus in utero.

"6. That the fœtal heart is so surrounded by a large mass of dense maternal structures and bloodvessels, and by the solid limbs and organs of the child, that it seems next to incredible that any sound emitted by it could ever reach the ear of an auscultator.

"7. That the whole system of fœtal auscultation originated soon after the dawn of general auscultation, when men's minds were excited by the love of novelty, and warped by many erroneous impressions and mistaken modes of thinking, and has since been mainly upheld by authority."

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

42. *On the Closure of the Anterior Fontanelle.*—M. Roger observes that some of the commonest facts are those which are known with the least exactitude, and instances the contradictory statements made by the most eminent anatomists as to the period when the fontanelles close. He has himself examined 300 children expressly to settle the point, and in this paper states the results. It is to be observed that he indicates the clinical and not the anatomical closure, the former being considered to be present when the space is completely filled up with matter as resisting as bone, and neither depression or cephalic *souffle* is perceptible. Actual bony union can only be proved by post-mortem examination. He gives the results of his examination of the 300 heads in detail, the general conclusion being that the period of closure is comprised between the age of *fifteen months*, when its occurrence is very rare, and the age of *three and a half years*, by which time it has always taken place. The usual period is between the *second and third year*. The frequency of the occlusion regularly progressive from the twentieth to the twenty-third month, underwent a sudden increase after the second year, and went on increasing more and more to the third and a half year. Two affections may retard occlusion, rickets, and hydrocephalus; and its non-occurrence may be one of the first manifestations, and afterwards a means of diagnosis, of the former of these affections; while the persistence, extent, and especially the increase of the apertures at an age when they should have closed, are certain signs of hydrocephalus. Their premature occlusion, on the other hand, may give rise to a fear of the induction of compression of the brain, and a, so to say, stifling of the intellect, *i. e.* a microcephalon or idiotcy. The rigorous determination of the period of the disappearance of the fontanelles may be of utility in legal medicine, in approximately establishing the age of a child or in a question of its identity.—*Med. Times and Gaz.*, April 21, 1860, from *Union Méd.*, 1859, No. 140.

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43. *On the Linæ Albicantes in Puerperal Women.*—Dr. Crede was induced to prepare this paper by what he considers too indiscriminate a statement made by Casper, in his *Handbook of Juridical Medicine*. Casper states that the white lines or streaks of the abdomen are always present in women who have borne children, while women who do not exhibit them may be pronounced not to have had children. He states that he has never been deceived in his diagnosis of delivery by their aid. This statement, from so high an authority, made in a book of large circulation, calls for, in Dr. Credé's estimation, a critical examination, and he lays down, as the result of his own observations, the following propositions:—

1. These lines are formed in very different degrees in the majority of pregnant women, but are very seldom observed during the first half of pregnancy, and often only during the last or the penultimate month. During his management of the obstetrical department of the Berlin Charité, and at the Leipzig Obstetrical School, Dr. Credé has paid particular attention to the matter, and the general result is that these white cicatrix-like lines have been observed in 90 per cent. of the cases examined; and they have very rarely ever been met with during the first half of pregnancy. They are usually disposed with some regularity, radiating from a mesial point that is placed about one or two inches below the umbilicus. With the expansion of the abdomen, the lines often become more irregular and unequal on the two sides.

2. After delivery they put on another appearance, but do not entirely disappear. The freshly-produced streaks, especially in primiparæ, are of a shining, bright, reddish appearance, in women having fair or red hair, and brownish in those whose hair is darker. The redness is lost sometimes only a few days after delivery, leaving a dirty white appearance, accompanied by wrinkling of the skin. On the occurrence of a new pregnancy, however, or when the abdomen becomes distended from any cause, the streaks exhibit a shining whiteness, with here and there a brownish tinge.

3. In several instances no traces of these appearances are discernible, even after repeated pregnancies. The result of Dr. Credé's most careful examination went to show that these lines were absent in 10 per cent. of the cases he examined expressly to ascertain the fact; of these cases, 7½ per cent. were primiparæ, and 2½ per cent. multiparæ.

4. These streaks are sometimes formed only during the second or third pregnancy, or new ones may become added to those already existing. This may be owing to the greater distension the abdomen has undergone in subsequent pregnancies. In general, it will be found that the woman in her first pregnancy was not strong, and had not carried her child to its full time. It is, at all events, common for a woman who has gone through a normal pregnancy without these lines appearing, to have them manifest themselves on subsequent occasions; on the other hand, it is not uncommon for those who have aborted at the fifth or sixth month, to first exhibit them at the end of a subsequent pregnancy. That these marks, when once formed, ever disappear, Dr. Credé does not admit, and consequently he denies the correctness of the statement that they are met with more abundantly in primiparæ than in multiparæ. They are only more plainly seen on account of their brighter colour.

5. The lines may also appear as a consequence of various diseases which give rise to great and sudden distension of the walls of the abdomen; and this not only in aged women, but also in young persons who may very well become the subjects of juridical investigation.

6. Lines of exactly a similar appearance which occur on the breasts, thighs, buttocks, or calves of the leg, equally deserve consideration with those observed upon the walls of the abdomen. Montgomery has especially dwelt upon the importance of the sign derived from the coincidence of the lines on the breasts and abdomen. Dr. Credé's observations have convinced him that their presence is of much seldomer occurrence on the breast and other parts named than on the abdomen.—*Med. Times and Gaz.*, June 9, 1860, from *Monatsschrift für Gebürtskunde*, Bd. xiv.

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44. *Condition of the Lungs after Death from Chloroform.*—In an essay published in the *Archives Générales* (1858), M. FAURE endeavoured to prove that when chloroform, in place of spreading equally and uniformly over the lungs, became concentrated at certain points during inhalation, such important modifications of the pulmonary tissue resulted as seriously to compromise the functions of respiration. The lungs then presented violaceous, or blackish spots which, on excision, proved to be deep-seated ecchymoses, having a greater extension within than externally. The tissue had lost all crepitation, becoming as if "felted," the blood no longer leaving it, but seeming to have become combined with it. It has been objected that such lesions were the result of the

mode in which the experiments were carried on, and that man, not breathing through tubes passed into the trachea, need not exhibit such appearances.

A recent case, however, contradicts this view. A woman who had inhaled chloroform died suddenly, when to all appearances she was about to be saved; and the condition of her lungs was exhibited before the Paris Society of Surgery. The lungs, several portions of which were in a normal condition, exhibited some singular congestions and ecchymoses, resembling those which M. Faure has described at great length, and having this remarkable, that they did not disappear even after the lung had been macerated for eight hours in water—the blood seeming, so to say, to have become combined with the pulmonary substance. The right lung was attached to the thorax by firm old adhesions, but the left lung was entirely free from these. The latter crepitated over nearly its entire extent, the non-crepitant portion being proportionally very small in extent, and emphysematous. The right lung crepitated nowhere, but was a very dense, fleshy, resisting mass, containing only a small quantity of air at its edges. Its colour was deep red or blackish at certain points; this not resulting from hypostasis, for it was less deep where in that case it would have been most observed. The left lung was much less deeply coloured at points, but its general appearance was of a bright red. But the upper lobe of the left lung, *i. e.* just the point least liable to cadaveric congestion, exhibited a considerable dense, deep-red congested portion, exactly like, indeed, the totality of the right lung. The heart was manifestly hypertrophied.

Thus, in this case, the left lung had been in its normal condition, but the right lung was deprived of a portion of its functions—a circumstance which would become a source of danger when the subject was submitted to the action of chloroform. It is certain that when a lung can no longer move freely in the pleura, its movements are diminished, and its circulation is more or less impeded. Chloroform, in place of becoming distributed equably and uniformly, may then become accumulated in considerable quantity in a lung which can no longer return upon itself in consequence of the adhesions which affix it to the parietes of the thorax; and lesions are produced resembling those which M. Faure determined artificially in animals—lesions which render the lung unsuited for hæmatosis and the continuance of life impossible.—*Union Méd.*, 1859, No. 144.

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45. *Detection of Arsenic, Antimony, Copper, and Bismuth, by Electrolysis.*—Prof. Bloxam, of King's College, has given the results of a very successful investigation of this subject, and showed that, by proper refinement in the method of operating, the process of electrolysis may become a certain and delicate means of detecting one or all of the metallic poisons, at least, with but few exceptions. In an examination for arsenic by this method, the metal is obtained in the form of arseniuretted hydrogen; the process is therefore very similar to that of Marsh, over which, indeed, it does not present any advantage in point of delicacy. Marsh's process, however, although it is capable of doing all that can be done by electrolysis with even greater delicacy, is open to several well-known objections, which have stood in the way of its practical adoption by toxicologists. The process of electrolysis does not involve the use of zinc, which is so difficult to obtain pure. It forms a general method for the detection of several metallic poisons at once, and the material tested is not destroyed or inconveniently contaminated, but may be used for another operation. When the arsenic, on the other hand, is present in a state of arsenic acid, it cannot, according to Prof. Bloxam's experiments, be detected with certainty by electrolysis. It is consequently necessary to reduce the arsenic acid by means of sulphurous acid. This is an objection which does not apply to Marsh's process. In his earlier experiments, Mr. Bloxam made use of a U tube containing dilute sulphuric acid: the substance to be tested was introduced into one of the limbs, and a cork with a bent tube fitted to its mouth; two platinum plates, leading from the poles of a battery containing five cells of Groves, were introduced into the two limbs, and the liberated hydrogen passed through the bent tube, which was heated by a lamp, when the arsenic, if present, was deposited.

The form of apparatus ultimately adopted as being the most convenient, con-

sists of a two or three ounce bottle, the bottom of which has been cut off, and replaced by a piece of vegetable parchment, bound on with platinum wire. To the mouth of the bottle is fitted a cork with a bent tube and a piece of platinum wire, which passes through the cork, and turns up beneath in the form of a hook. A slip of platinum then hooks in the end of the wire, and passes nearly to the bottom of the bottle; it forms the negative pole of the arrangement. The bottle stands in an ordinary test-glass, and the positive pole, also of platinum, stands in the glass. Dilute sulphuric acid is put into the bottle, and also the glass, so as to stand to the same height in both vessels. The substance to be tested is introduced into the bottle, the cork adjusted, and the wires connected by five cells of Groves' battery; the heat of a spirit lamp is applied to the bent tube, and in the course of a quarter of an hour a distinct mirror is obtained, if arsenic is present. Standard solutions, containing respectively a tenth, a hundredth, and a thousandth of a grain of arsenious acid, were prepared and examined by this process, and in every case a successful result was obtained. These solutions were then mixed with organic substances, such as the ordinary articles of food—meat, eggs, milk, &c.—and the resulting matter examined.

It was got into solution by means of chlorate of potash and hydrochloric acid, and the resulting fluid evaporated down by means of a water-bath to a thick, syrupy liquid. The arsenic was thus obtained in the state of arsenic acid, which does not give a certain result by the electrolytic process. Some sulphurous acid was therefore added, and the mixture introduced into the bottle, after expelling the excess of sulphurous acid by evaporation; a drachm of alcohol was then poured over the surface, and the process put into operation. The author prefers to add this drachm of alcohol in every case, inasmuch as it not only allays the frothing, but also affords an additional indication of the presence of arsenic; for when these two substances are present—the alcohol and the arsenic—the gas which escapes at the open end of the test tube possesses a very peculiar odour, resembling alkarsin. If a little sulphurous acid be present, it also furnishes an additional character indicative of arsenic; namely, a slight yellow deposit, consisting of sulphide of arsenic, close to the borders of the metallic mirror. In all these experiments, of which a great number were made, the thousandth of a grain of arsenious acid was readily detected.

The other metals which may be detected by this process are mercury, antimony, copper, and bismuth; lead is precluded by the sulphuric acid which is present. These are all precipitated in the metallic form upon the slip of platinum, and even in the case of antimony a mere trace of antimoniuretted hydrogen is formed, the metal being all deposited upon the negative pole. The mode of proceeding in these cases is precisely similar to that adopted for arsenic; when the operation is concluded the slip of platinum is detached, washed, and the deposit dissolved off in the usual manner. Thus, where an organic mixture has to be examined for arsenic, mercury, copper, antimony, and bismuth, it is prepared in the manner just described for arsenic, and the resulting liquid introduced into the bottle, the drachm of alcohol poured over the surface of the contents, the cork adjusted, and the battery connected. The heat of a spirit lamp is applied to the bent tube, and the operation continued for about a quarter of an hour or twenty minutes, when, if arsenic is present, a metallic deposit, accompanied by some crystals of arsenious acid, will be formed in the tube, and the escaping gas will have the alkarsin-like odour. The piece of platinum in the bottle is next removed, washed, and boiled in yellow sulphide of ammonium. Antimony would be dissolved and might be obtained as sulphide by evaporating this solution to dryness. The other metals would still remain in the plate; it is next boiled in nitric acid containing a trace of hydrochloric acid, the solution evaporated to a small bulk, and an excess of ammonia added. Oxide of bismuth would be precipitated, together with whatever traces of platinum had been dissolved. The precipitate may be dissolved in hydrochloric acid, and tested by pouring into water, &c. The ammoniacal filtrate would contain the copper, indicated by its blue colour, and the mercury. By boiling with hydrochloric acid and a slip of copper, the latter would be separated in the metallic form.—*Pharmaceutical Journal*, January, 1860.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of Puerperal Convulsions from Albuminuria, in which Chloroform was successfully used, with Remarks. By Chas. A. Lee, M. D.—Mrs. F. T., aged 21, of very small frame and feeble constitution, was taken with labour pains with her first child, May 4, 1860. She had for several weeks presented a very leuco-phlegmatic appearance, her face swollen and of almost an alabaster colour, feet and ankles also swollen, otherwise apparently healthy, although troubled more or less with headache. She was able to take exercise, and the day before she was confined she walked nearly a mile. On examining the urine it was excessively loaded with albumen, containing by far the largest amount I have ever found in any case whatever. Fearing convulsions, I had procured a quantity of pure chloroform, of Squibb's manufacture, and used it in moderation for three hours before delivery, and giving it during the few last pains to the extent of producing complete unconsciousness. Labour pains commenced at 7 o'clock A. M., and delivery took place at 3 P. M. It was given throughout in quantity sufficient to produce perfect tranquillity, applying it as soon as the first indications of a pain were perceived, and withdrawing it when over.

Several times before the labour was completed, there were indications of approaching convulsions, such as turning up of the eyes, contractions of the hands, and involuntary twitchings, which were at once removed by the inhalation of a small quantity of chloroform. There was but very slight discharge of blood on delivery of the after-birth, certainly not more than four ounces altogether; the placenta having been spontaneously detached, was removed about half an hour after the child was born. The patient, on awaking a few minutes after the expulsion of the child, was surprised and gratified to find that all was over, and expressed herself as perfectly comfortable. After remaining about an hour, I left to visit some other patients, and on my return in an hour and a half after, found that she had had two very violent convulsions; the first about half an hour after I left the house. It came on suddenly, without any warning or premonitory symptoms whatever, and lasted two or three minutes. Soon after entering the room another very severe convulsion occurred, which was followed in an hour by another, and in the course of the next twelve hours as many as ten more. Having employed the usual means, with the exception of bleeding, general or local, and the fits increasing in severity and frequency, I procured a quantity of pure chloroform, and stationed myself at the bed-side, which I scarcely left for the next forty-eight hours. The patient, I should have stated at first, retained her consciousness between the fits, but latterly remained perfectly comatose, and could not be roused. The convulsions were of an epileptiform character. During the attack the face was distorted by spasmodic contractions, the pupils dilated, the eyes agitated and turned upwards, the tongue protruded, and the under jaw closed with such violence that the tongue was badly bitten before any precautionary measures were taken, all the muscles of the body seemed thrown into violent and irregular action, the limbs jerked in all directions, and it

seemed as if every joint would undergo dislocation. The expiration was irregular, the pulse very frequent and feeble. The paroxysms fortunately were not of long duration, the longest not exceeding five minutes.

After commencing the use of the chloroform but one paroxysm occurred, and that was during my absence from the bedside. About half a minute before the convulsion began, some premonitory symptoms appeared, such as turning up of the eyes, grasping or contraction of the hand and fingers, closing of the teeth, and slight general agitation. As soon as any of these symptoms appeared, about a drachm of chloroform was applied to the mouth and nose on a handkerchief, and two or three inspirations were enough to cause entire relaxation, and a removal of all the threatening symptoms. The control exercised by the chloroform over the morbid condition, or exciting cause of the paroxysms, was perfect and complete; nor was the pulse rendered more frequent or feeble in consequence of its use. The vital functions were all carried on with regularity. Its use was discontinued as soon as the threatening symptoms above mentioned disappeared, which was about forty-eight hours after delivery. On examining the urine at the end of that time, it was found to be free from albumen.

The patient remained wholly unconscious all this time, and for nearly as long a period afterwards. The pulse most of the time ranged from 150 to 180 in a minute, much of the time too feeble and frequent to be counted; it, however, gradually came down, so that by the fifth day after delivery it was but 120. Life was sustained by giving essence of beef, brandy, carb. ammonia, wine, &c., at regular intervals. It is now twenty-two days since her confinement, and she is progressing as favourably as could be desired; sitting up a good part of the day and nursing her infant, which has gained two pounds since birth. In all, about fifteen ounces of chloroform were used.

Remarks.—No reasonable person, I think, can doubt for an instant that chloroform was the means of saving life in the instance above related; after all other means had entirely failed, life nearly extinct, the paroxysms becoming more and more frequent, and all hope of saving the patient nearly abandoned, the anæsthetic powers of chloroform were called into requisition, and with absolute and perfect success. It seemed to be the agent expressly made for just such an emergency; for it met most fully and satisfactorily all the indications of the case, and rescued the patient from the very jaws of death. There is every reason to believe that it prevented an attack of convulsions before parturition was completed. There were all the premonitory symptoms of a paroxysm present, the same as preceded the fits after delivery; but on the prompt use of chloroform they instantly disappeared: and this fact, taken in connection with its effects in other similar cases, makes me doubt very much the propriety of the rule laid down by Professor Henry Miller, of Louisville (*The Principles and Practice of Obstetrics*, Philada., 1858, p. 518), in such cases, as follows:—

"From the very nature of the disease, and the circumstances in which its attack is made, we should expect that there can be no security for the mother except by delivery, originating in the peculiar condition of the womb during parturition, nothing but a total change of this condition, such as delivery brings about, can be expected to put a stop to the convulsive paroxysms.

"With every returning uterine contraction, the equilibrium of the circulation is disturbed, and irritation is propagated anew, from the cervical nerves to the true spinal system, and thus the disease must be kept up, in spite of all the resources of ordinary therapeutics. This is, in effect, admitted, by the most sanguine advocates of the lancet, even by Gooch and Dewees, who advise delivery

by the forceps, as soon as it is practicable, now, I go a step further and contend that, where the mother is placed in the fearful jeopardy supposed in the outset of these remarks, it is lawful, nay, it is our imperative duty, to deliver by craniotomy, whether we have complete assurance of the death of the child or not."

In the first place, it may be remarked that it is an entire assumption, unsupported by any known facts, that the cause of puerperal convulsions consist "in a peculiar condition of the womb during parturition." There is no subject in regard to which greater discrepancy of opinion exists than that of the remote and proximate causes of puerperal convulsions. Scarcely any two writers have expressed the same opinions. A very common opinion among medical men is, that the principal exciting cause is congestion of the cerebral vessels, or pressure on the brain, while Dr. Collins thinks we are quite ignorant as yet of what the cause may be. (*Treat. on Midwifery.*)

Puerperal, like all other convulsions, may be centric or eccentric, and the stimulus mechanical or emotional. The centric causes may be intra-vertebral, or intra-cranial, or both. Pressure on the brain from fulness of the vessels, a clot of blood, or collection of serum, may, by counter pressure on the medulla oblongata, cause convulsions. So also, similar causes acting on the spinal meninges, and medulla, produce the same effect. In like manner, an opposite condition, a want of a proper supply of blood to these central organs of the nervous system, will cause convulsions; as we see in cases of fatal uterine hemorrhage, or in animals bled to death. But the most important and most frequent of all these causes, is the constitution of the blood. This fluid becomes changed from its normal condition, during utero-gestation, by the imperfect depurating action of the secretory and excretory organs, caused chiefly by want of proper exercise, and the mechanical pressure of the gravid uterus on the intestines, the renal vessels and nerves, and the kidneys. The blood, moreover, does not undergo thorough oxygenation, from the pressure upward, preventing the free action of the diaphragm. But chiefly does the blood become a morbid stimulant to the spinal system, in consequence of the loss of albumen by the urine and the retention of the urea and other salts in the blood, causing the now well known affection albuminuria, we have no accurate statistics, showing the proportion of cases of convulsion dependent upon this condition of the blood, but it is very safe to say, that in a vast majority, especially of primipara, it is the exciting cause. Thus, Dr. Lever remarks, "I have carefully examined the urine in every case of puerperal convulsions that has since come under my notice, both in the Lying-in Charity of Guy's Hospital and in private practice, and in every case but one the urine has been found albuminous at the time of convulsions. I further have investigated the condition of the urine in upwards of fifty women, from whom the secretion has been drawn during labour by the catheter; great care being taken that none of the vaginal discharges were mixed with the fluid; and the result has been, that in no cases have I detected albumen except in those in which there have been convulsions, or in which symptoms have presented themselves, which are readily recognized as precursors of puerperal fits," and "this has been confirmed by numerous writers on this subject, as Simpson, Legroux, Blot, and others." That the mechanical pressure upon the kidneys, by causing congestion of these organs, is the cause of albuminous urine, can scarcely admit of doubt, inasmuch as this condition is met with most frequently in primipara, and disappears in two or three days at furthest after parturition. There is no evidence whatever to show that it is dependent in such cases on granular degeneration as has been maintained by some.

It is evident, that the depuratory actions of the kidneys should be active during the puerperal state, in order to eliminate the *debris* of the fœtal and maternal system, and thus preserve the health of the mother. It is no less evident that the causes already mentioned, tend to impair the excretory functions, and produce that condition of the circulating fluids, as to predispose to, or excite convulsive action. In regarding the state of the blood circulating in the spinal centre, as the most frequent cause of puerperal convulsion, we do not deny the influence of eccentric or reflex causes in certain cases, such as irritation of the uterus itself, and the uterine passages; irritation of intra-cranial excitor nerves; irritation of the ovaries; of the intestinal canal, the stomach, the bladder, and possibly the cutaneous nerves, though several of these causes may act together, and centric and eccentric causes be combined in producing the result. In some cases, it may be difficult to decide which are the remote and which the exciting causes; or, whether the same cause may not be both predisposing and exciting. But in either case, I believe it will be found that chloroform is, in a vast majority of cases, the sheet anchor of our reliance.

In the case which I have briefly sketched, the prognosis was nearly hopeless. The patient was of very feeble constitution, very slight frame, a highly nervous temperament, the urine loaded with albumen, and she had lost a brother of the age of 14, a few months previously, of albuminuria. I am fully aware that, in a general rule, it would not be safe to rely on a single case for guidance in the management of this dangerous affection, but I was too much gratified with the action of chloroform in this case, and I think it well worthy of being communicated.

Case of Poisoning by Strychnia: Use of Chloroform. By J. R. Smith, St. Mary's, Co. of Perth.—In November, 1857, I was called to see a young man by the name of Daniel Reardon, in this place, who, it was supposed, had been frozen. Upon examination, I discovered the symptoms of poisoning by strychnia. The muscles were powerfully contracted, the limbs stiffened, the jaws locked, difficult respiration, pulse small and frequent; from the severity of the symptoms I did not think it possible for the man to recover. The first remedy, which suggested itself as the best, was chloroform, which I administered by inhalation sufficiently to relax the muscles to admit of easy flexion of the legs and arms; respiration then became quite natural, the pulse less frequent and more perceptible; the chloroform was then withdrawn till the tetanic symptoms returned, and again applied and alternately withheld till the effects of the strychnia passed away, which was about ten hours. I first saw my patient in the evening at nine o'clock, and at seven next morning consciousness returned; the chloroform was then withheld. An emetic was then given, and afterwards a purgative. The man became gradually convalescent, his appetite and strength returning, till two days afterwards, when symptoms of the strychnia again appeared, which, however, were not alarming. After this, recovery was very rapid. This man is now a soldier in the Canadian 100th regiment. Twenty-four ounces of chloroform were used, though no doubt much was lost from the sponge, my guide in the use of the chloroform being such as to produce a slight relaxation of the inferior maxillary and easy flexion of the upper and lower extremities. It appears from the statement of the man himself that he was a hunter and used strychnia in destroying wolves and foxes, and in a temporary fit of madness from the use of spirits took a dose of the poison himself in a glass of liquor. A small vial containing strychnia was found upon his person.

Treatment of Pneumonia. By L. M. Lawson, M. D.—In my paper on the Treatment of Inflammation, published in the Jan. number of the *Am. Journ. Med. Sci.*, it was stated that of 37 cases of pneumonia, admitted into the Marine Hospital, Louisville, Ky., 18 died. It was also stated that Dr. Austin Flint had charge of the hospital during the winter, and that his treatment was reported to have been mainly the expectant. I was unable to obtain the exact facts, as no records were kept by the resident physician; but from the statements made to me the inference appeared unfavourable to the expectant method of treatment.

Dr. Flint has just informed me, however, that his term of service extended from October to January, and that only *two* cases of pneumonia came under his care during that period. It affords me pleasure to make this correction, which is due to Dr. Flint.

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Rhubarb in Suppurating Burns.—Dr. Samuel R. Rittenhouse, of Macunzie, Lehigh Co, Pa., writes to us that of all the applications he has ever employed for suppurating burns none has been so prompt and efficient in its action as powdered rhubarb mixed with lard. He uses one part by weight of rhubarb with two of fresh lard, which is to be spread on linen and applied to the suppurating surface.

DOMESTIC SUMMARY.

Fistulous Ulcer in front of the Larynx.—Dr. John Watson records (*American Med. Times*, June 2, 1860) the two following interesting cases of this affection.

Case 1. On the 6th of April, 1838, I saw in consultation with a gentleman of considerable surgical experience, a young lady, Miss C., about twenty years of age, who for the previous two or three years had been troubled with a papillary ulcer in front of her neck immediately over the thyroid cartilage, and from the centre of which there had been a continual weeping of a glutinous transparent colourless fluid, like inspissated synovia. Several attempts had been made by the gentleman in attendance, and by others, to close this ulcer, but without effect. Milder means proving of no avail, the ulcerated integument had been excised, under the hope that a newly exposed surface in the healthy skin might take on the process of cicatrization. But after the wound had contracted to a small point, the glutinous discharge, which had not been arrested, continued to keep the parts from closing. Again a second and more severe operation had been undertaken, in which the integuments for a wide space around the ulcer were excised, and the edges of the wound were drawn together by suture, so as to favour union by the adhesive process. The only effect of this measure was to leave an unsightly transverse cicatrix, which greatly disfigured the exposed surface. When I first saw the patient, the ulcerated opening in the centre of this cicatrix was hardly large enough to admit the point of a delicate probe. But after penetrating through the orifice, the instrument slipped readily onwards for about an inch under the integuments, in the median line, upwards in front of the thyro-hyoid ligament, to the border of the os hyoides, where it rested. On withdrawing the probe and grasping the parts along which it had passed, I could feel beneath the skin a delicate cord-like track of induration, such as might result from the indurated parietes of a narrow fistula.

After some deliberation, seeing that the true character of the case had not hitherto been appreciated, and bearing in remembrance that I had often cured obstinate fistulæ in other parts of the body by injecting them with corrosive ublimate, I advised the gentleman in attendance, first, to inject the fistulous

track with pure water, so as to cleanse it, and then to throw in, through a delicate canula introduced to the bottom of the fistula, as much as the parts would contain of the following solution: ℞.—Muriatis hydrargyri, Muriatis ammoniæ, āā gr. v; Aquæ puræ ℥j.—M.

It is sufficient to add that a single application of this solution arrested the glutinous discharge, and led in a few days to the permanent cure of the fistula. I last heard from this young lady on the 1st of July, 1839. There had been no return of the disease, her health was good, and she was then preparing for her approaching marriage.

CASE 2. On the 17th of May, 1859, Mary Kelly, aged seventeen years, entered the N. Y. Hospital, with a minute ulcer in front of her neck, over the thyroid cartilage, giving issue to a glutinous discharge corresponding in all respects with that observed in the previous case, and surrounded by a rugged and irregular cicatrix about an inch wide, the result of escharotic applications that had, among other means of treatment, been employed to no purpose. The discharge in this was more glutinous than in the former case, and when not frequently washed off, would form a thick crust over the ulcerated surface. The fistulous track would not admit an ordinary probe. I was obliged to employ a delicate gold probe intended for the puncta lachrymalia, in order to enter it. But the instrument, as in the other case, after passing the orifice, readily reached the anterior border of the os hyoides, passing in as before, through a track in the median line, somewhat over an inch in length, and the parts here, when grasped, giving the same feeling of cord-like induration.

After dilating the fistula by the use of probes of various sizes, the same course of treatment was employed as in the other case. The house-surgeon, however, mistaking my directions, at first employed a solution of only two grains of corrosive sublimate to the ounce of water. With this he injected the fistula several times with no apparent benefit. But on increasing the strength of the solution to four grains, a single injection arrested the oozing, and in the course of a few days affected a permanent cure of the fistula.

The rationale of these cases Dr. Watson observes, "would seem to be, that the first point of diseased action is in some minute bursa, or cyst, near the anterior border of the os hyoides, and that the fistula is first established, and afterwards kept patulous, by the glutinous discharge secreted there."

Traumatic Tetanus treated by Large Doses of Cannabis Indica.—Dr. CHAS. O'DONOVAN reports (*Maryland and Virginia Medical Journal*, June, 1860) a case of this, occurring in a man 22 years of age, who, on the 13th of April, fell from a height on a pointed plank, which entered the lower edge of the gluteus muscle, penetrating to the extent of eight inches. Eleven days afterwards (April 24) tetanic spasms came on, and Dr. O'D. determined to give a fair trial to cannabis Indica. He began with the dose of one-fourth of a grain of Squire's extract every three hours, which, after the fourth dose, was increased to half a grain every two hours. The next day the dose was increased, first to one grain, and afterwards to a grain and a half every hour. On the 26th, the spasms increasing, he was given two grains every hour, when, after taking 117 grains, the spasms decreased in frequency. A quiet, dreamy condition now existed, and in the interval between the spasms, though not sound asleep, he rested comfortably.

The next day (April 27) Dr. O'D., fearing exhaustion, increased the dose of cannabis Indica to three grains every hour, and before night every half hour.

"*April* 28. Condition as yesterday; very little sleep; pulse 74, and good; appetite good; drank freely of beef-tea, milk, and water. Complains of bed-sore on right hip, and of much soreness in the wound. Bowels moved about six times in bed. We were unable to touch him without immediately causing more severe spasms. He talked freely; seemed in good spirits when roused; has pleasant dreams; sees objects moving about him; thinks his legs have been removed; says he will get well; wishes to be kept quiet. Gave one-third grain morphia and three grains of tannic acid. To continue six grains cannabis Indica every hour."

30th. Spasms worse. Ordered medicine increased to 9, 12, and 18 grains within the hour. This seemed to check the spasms towards night.

"*May* 1. During the past 14 hours he had taken 180 grains, which kept him in a drowsy, dreamy, muttering condition. His appetite, pulse, &c., continued remarkably good. The bed was much soiled; odour very unpleasant. Had him taken from it, and laid upon a mattress upon the floor, until clean bedding could be arranged. This increased the paroxysms very much; his case now appeared desperate. I gave ʒj cannabis Indica within one half hour, and ordered 18 grains every half hour until relief appeared. Repeated morphia and tannic acid.

"2*d*. Visited him at same hour. He had slept comfortably six hours. Had taken 138 grains during night before sleep was produced. The spasms ceased until noon, when they returned with less violence and at longer intervals. To continue same treatment, graduating doses according to the violence of the spasms. Chips and pieces of clothing came from wound.

"3*d*. Bowels moved about four times; colour green; pulse 70 and weaker; appetite good; drowsy; slept but little through the night; spasms every one-half minute, but feeble. Gave tinct. opii camph. ʒj; ordered cannabis Indica, grains vj, every three hours, more frequently should they become severe. More splinters came from wound.

"4*th*. Bowels checked; spasms every three minutes; passed restless night; stiffness and soreness of neck, due partly to long continuance in the same position. Continue treatment.

"5*th*. Rested some last night; constant muttering delirium. Although easily roused to answer sensibly, he quickly relapses into the dreamy, talkative condition in which he has been for some days. He persists in believing his legs have been amputated. Bowels quiet; drank freely of beef-tea, cream, and port wine. Tetanic spasms have almost ceased since midnight; sensation agreeable; urinates without any pain. During past night took six grains every half hour. More chips came from the wound. Stop cannabis Indica; ordered to drink freely of hop-tea, and to take ʒj elixir opii (McMunn's) every three hours. He has now taken 1,437 grains of Squire's extract of cannabis Indica. Tetanus has nearly ceased.

"6*th*. Slept soundly four hours last night, without any tetanic twitches. This morning had two or three, very mild, at intervals of about three hours. His mind still unsettled; appetite, pulse, skin, bowels, and general appearance very good; discharge from wound free and healthy, the orifice gradually closing; a few splinters come now and then; takes plenty of nourishment, without, however, having the ravenous appetite he possessed whilst taking large doses of the cannabis Indica. He improves steadily up to this time (May 12). Has had no spasms during the past three days, but continues dreamy and talkative, but always ready to answer satisfactorily any question. The tetanus I consider cured; but since the mental condition of the patient is, in my judgment, due to the large quantity of the remedy taken, and since this condition from a like cause is new to me, I prefer to watch what nature will do, rather than administer anything in the hope of facilitating the return of his normal mental condition. The large doses of the remedy certainly controlled the disease, and, in my opinion, saved his life."

"From the third day the remedy," Dr. O'D. says, "showed its power over the disease; and if at any time its exhibition was delayed, the intensity of the spasms increased." "When necessity obliged the change of bedding, we witnessed a terrible aggravation of the disease. The remedy was then used without fear or measurement; at one period, from 7 A. M., May 1, to 7 A. M., May 4, exactly three days, he took 780 grains, and even this enormous quantity did not produce, for a moment, one single symptom to contraindicate its exhibition, if thought advisable, in still larger doses. When we produced sufficient quiet, we only used such quantities as kept up this state. More than this prudence forbade; but the continued delirium, or rather wakeful and talkative, generally semi-rational, condition, has been the only unpleasant effect. This has now lasted five days, but he has slept at intervals during this time; but how long it will be before reason resumes her guidance of the patient, time must yet determine."

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Traumatic Tetanus successfully treated by Large Doses of Camphor and Opium.—Dr. W. C. Van Bibber reports in the same journal the case of a

labourer, æt. 42, in whom tetanus resulted from a large spike-nail penetrating the foot, which was not removed until the second day after the disease was developed. The spasms commenced violently on the fifth day after the accident, and continued nine days. The patient had opisthotonos and trismus. The treatment was by opium and camphor. The average quantity taken was 80 grains of the former, with 160 grains of the latter, every twenty-four hours for nine days. After which there were no more spasms. The whole quantity of opium taken was about 700 grains, with double the amount of camphor. The patient was beyond the average height, weight, and strength, and possibly this amount of opium might not have killed him when in health; still, the physiological effects were so disproportioned to the amount given, that it is therapeutically fair to conclude the force of the remedy was exerted in controlling the disease.

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Chloroform in the Chill of Congestive Fever.—Dr. J. E. KEATOR, states (*New Orleans Med. News and Hospital Gaz.*, April, 1860) that he was called to see a negro girl about fourteen years of age, in one of the strongest marked cases of congestive chill he had ever seen. She was "pulseless at the wrist; arms cold nearly to the body; legs in the same condition; breath decidedly cool; tongue cold; also the ears, nose and scalp; great thirst, and constant call for water, which was thrown up usually almost as quickly as swallowed. The burning pain of the epigastrium was about all she complained of. I ordered her feet immediately immersed in a hot foot-bath, strongly impregnated with mustard. Sinapisms were applied to the thighs, wrists and spine, and cold cloths to the stomach and epigastric region. When her feet were removed from the bath, where they were kept fully fifteen minutes, the skin was as cold as that of a corpse. Believing the case almost a hopeless one, I determined to try a remedy I had not yet heard of being used in such a case; viz: chloroform. I commenced by giving five drops in a little water. Within less than two minutes after the dose was swallowed the girl remarked that the burning at her stomach was gone, the vomiting ceased, and she seemed to rest a little. I continued giving it at intervals of from ten to fifteen minutes for nearly two hours in the same quantity as at first, and each time had the satisfaction of hearing from the lips of the patient herself that it made her stomach feel so much better that she wanted more of it. At the end of two hours the pulse was full and strong at the wrist, the extremities were warm, and reaction was fully established. The fever was only moderate. By the free use of quinine another chill was prevented, and the patient fully recovered."

In the June No. of the same Journal, Dr. J. J. ROOKER states that he has been in the habit of using this remedy for the past two years. It appears, he says, "to fulfil the following indications:—1st. It allays nausea and vomiting. 2d. It allays the pain in the stomach. 3d. It equalizes the circulation. 4th. The reaction is never excessive after its use."

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Caffeine as an Antidote to the Poisonous Narcotism of Opium.—Dr. H. F. CAMPBELL relates (*Southern Med. and Surg. Journ.*, May, 1860) a case of extreme narcotism from opium promptly relieved by artificial respiration, and the administration of caffeine by injection. The subject of it was a man, æt. 24, who, in a fit of temporary depression, took over an ounce and a half of laudanum, about 7 P. M., Oct. 10. When seen by Prof. C., an hour afterwards, he was completely insensible—tongue and lips purple, muscular system relaxed, and respiration very slow. Cold water was poured on his head and occasional artificial respiration somewhat improved the patient's condition, when the stomach was well washed out with the stomach pump.

At midnight the patient's condition was worse, "the surface was cold, and purplish from imperfect aeration of the blood, the muscular system, if possible, more relaxed than ever, the respiration, fearfully slow, when counted, by the watch, was found to be *but four to the minute*. The intervals between the inspirations were now irregular, and each time we had to resort to shaking and slapping the patient to provoke the automatic action of the respiratory muscles, and to raising him up suddenly to the sitting posture, for the same object. The

tongue had to be constantly pressed forward with the fingers to prevent its falling back and obstructing the opening of the glottis. The imperfect and irregular action of the heart became now more alarming than ever. It was found that, in the reclining position, this symptom of the case was more alarming than when the patient was placed in the sitting posture. Several times the intervals between the beats of the pulse led us to fear that the patient had expired, but on elevating him the action of the heart became more regular. He was now kept in the elevated position, and not allowed to recline except for a moment at a time, for fear that he would die immediately. Ceaseless efforts were now necessary on the part of his attendants to provoke the respiratory movements. Surrounded by his friends, several of whom were remarkably self-possessed and indefatigable, not a moment was allowed to pass without some effort, as by shaking, compressing the chest, &c., to excite inspirations. No time was now to be lost—but our best efforts at exciting respiration began now to fail to have any effect, and it was evident that *artificial respiration* was now the only possible hope for the patient. This measure, under the circumstances, was a natural suggestion, but for reasons sufficiently apparent, it seemed impossible to carry it out in the present case; most of the ordinary means of effecting artificial respiration seemed to us impracticable, on account of the delay involved in their performance, and Dr. Marshall Hall's 'Ready Method' involved the horizontal position, in which situation, it was clear to the minds of all present, the patient would die immediately.

"*Artificial Respiration in the Sitting Posture.*—1 o'clock. Under these circumstances, we devised a method of artificial respiration which was well adapted to the condition of the patient—indeed, the only one possible—and which we do not recollect to have seen reported anywhere in the writings of any one on this subject.

"*The patient was supported in the sitting posture*, by an assistant kneeling on the bed at his back and holding his head erect between his hands; two other assistants standing on each side of the patient now took charge of an arm each, holding the limb firmly at the elbow and upper part of the forearm; the tongue was now pressed down by the handle of a spoon, or the fingers introduced into the mouth; *the assistants having charge of the arms, were now directed to elevate these limbs simultaneously, carrying them above the head at an angle of about forty-five degrees, and dragging upon them so as to slightly lift the patient, the arms were then depressed and brought down close against the sides of the thorax so as to compress the chest.*

"The effect of these movements was the following: At each attempt at lifting the body by the arms in this way, forcible *traction outwards* was made on the walls of the chest, through the pectorales major and minor muscles, the serrati and parts of the two latissimi dorsi muscles—giving rise to expansion of the walls of the thorax; the air was thus caused to enter forcibly into the lungs, and thus *inspiration* was completed. The arms were then brought steadily down, and pressed against the sides of the thorax and abdomen—compressing them and expelling the air forcibly from the lungs and effecting *expiration*.

"Under the use of the artificial respiration, the appearance of the patient was much improved. The colour was restored to the face, the lips became redder, and the countenance more natural, though the relaxation of the muscular system was by no means lessened; if the head was left unsupported for an instant, it fell forward as suddenly and forcibly as that of a dead man. The artificial movements were continued for more than an hour, and though the colour of the patient was improved and the heart's action became normal, still when they were omitted, there was found no improvement in the natural respiration, these being still, *but four times in a minute*, as before artificial respiration was applied.

"We now felt the necessity of adopting some means of introducing a stimulant or anti-narcotic agent into the system. *Strong coffee* naturally presented itself to our mind, but the only preparation we could obtain at that time, was a rather weak infusion left from the supper at the hotel. It was clearly impossible for the patient to *swallow* anything, and we did not think it advisable to run the risk of introducing the stomach-tube in his present condition; we therefore called for a syringe, but the weakness of the coffee caused us to hesitate about using it,

when fortunately the idea of *caffeine* occurred to us, and we sent immediately for that preparation. The artificial respiration was then energetically resumed, in order to prepare the patient for being placed in the horizontal position. A small quantity of the caffeine was rubbed upon the tongue and to the inner surface of each cheek. The patient was then laid upon his side, *and an injection of the coffee with a large quantity (afterwards ascertained to be twenty grains) of the caffeine dissolved in it, was administered by the rectum*, with a common syringe. The patient was then immediately raised again to the sitting posture, and the artificial respiration resumed.

"In less than *half an hour*, we perceived that occasionally, between the artificial movements, the patient would effect a *natural inspiration*—these became more frequent, and soon rose to about eight in the minute. He was then laid down, and the artificial respiration omitted. The assistants, however, were directed still to remain on the bed and to retain their hold on his arms, that they might resume their efforts at any moment. An hour had not elapsed from the administration of the injection, when the patient, to the astonishment of all present, *forcibly jerked his left arm from the assistant!* (which was the first action of the voluntary muscles he had performed), and immediately began to twist himself in bed, and told those about him, angrily, 'to let him alone!'

"From this time, he did not again sink into the comatose state, and the relaxation of the muscular system did not return. The respiration became more and more natural, but he remained drowsy, and efforts were continued occasionally to prevent his remaining too long asleep."

After this the patient improved, and in a few days had quite recovered.

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Apparatus for Transverse Fracture of the Patella.—Dr. S. T. KNIGHT, of Baltimore, describes (*Maryland and Virginia Medical Journal*, Feb. 1860) an apparatus which he devised some years since, and has successfully employed in two cases of transverse fracture of the patella.

The idea of the instrument was suggested by a drinking gourd which was by the side of the first patient. The double strap of Sir Astley Cooper having failed to keep the fragments in apposition, the gourd was applied over the patella, and found sufficient to overcome the contraction of the rectus muscle. "A tin muffin-ring was then procured, and found to answer the same purpose. From this stand-point of observation the present instrument was constructed.

"It consists of a ring of stout tin, three inches in diameter at the top, and so shaped upon the lower edge as to suit the form of the knee-joint. There is a bar of tin lying upon the femur and also upon the tibia, which enables the instrument to be secured more perfectly with a roller. A strap, with a cushion for the popliteal space, passing through a loophole of tin on either side, a buckle attached, completes the instrument. The whole is neatly covered with soft leather. The method of applying it is as follows: First, bandage the limb from the toes to the hip; then take a lateral splint for the external surface of the leg, and secure this, together with the instrument, over the patella, with the same roller. The contractions of the rectus muscle will thus be effectually overcome, and bony union of the patella result."

In both cases in which he has used this apparatus, there is, to all appearances, bony union.

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Ligation of External Iliac Artery.—Dr. REUGNET reports (*New York Journal of Medicine*, May, 1860) two cases of this in the service of Dr. Jas. R. Wood, at Bellevue Hospital.

The subject of the first case was an Irishwoman, 26 years of age, of good constitution but intemperate habits, with an aneurismal tumour the size of a small orange in the left groin. Dr. Wood applied a ligature to the external iliac on the 17th of December. Peritonitis supervened, and proved fatal on the third day.

The second case occurred in a man, æt. 31, of good constitution but intemperate habits, with an aneurismal tumour in the right groin. Dr. Wood applied a ligature to the external iliac on the 25th of February, and at the date of the report (April 14) the wound was healing, and the patient's health had improved.

Paralysis consequent upon the Poison of Diphtheria.—Dr. Jas. B. Reynolds, has published in the May No. of the *New York Journ. of Med.* (and we find the same paper with a few verbal changes in the *Charleston Medical Journal*, for the same month), a very good account of this affection which has recently excited much attention, particularly in France. Dr. R.'s observations are based upon the histories of 77 cases of diphtheritic paralysis; about ten of which he has himself seen, either in foreign hospitals or in the practice of professional friends.

"MM. Faure, Trousseau, and Lasègue were the first to call attention to the difficulty of deglutition and nasal voice, following membranous angina or diphtheritic sore throat; but it is especially to M. Trousseau's clinical and written lectures, that we are indebted for a thorough description of the local and general paralysis consequent upon the poison of diphtheria. In the histories of the many epidemics recorded in medical literature, cases have occurred in which we now recognize true diphtheritic paralysis, more or less marked. As early as 1748, M. Chomel records cases of membranous angina and paralysis following."

In 1771, Dr. Samuel Bard, of New York, mentioned a case of ulcerative angina, followed by aphonia, and muscular feebleness, which lasted two months.

"In most cases every trace of the primary disease has disappeared, the patient sleeps, eats, and digests well; yet many cases emaciate and a marked pallor overspreads the face; and if a child it may become irritable. This state lasts, as a rule, from two to three weeks, when the patient experiences some slight difficulty in articulating distinctly, being unable to pronounce the labial consonants, or the sense of taste at the back of the tongue is altered, and the voice may become feeble; but if the paralysis goes on, it is always accompanied by the *nasal* tone of the voice, and the regurgitation of liquids through the nose. Frequently the nasal voice and the regurgitation through the nose, are the first symptoms to call attention to the disease. If you now closely examine the soft palate, you find it hanging relaxed, and if it is pricked, there is no contraction of it, nor does it give the patient pain. Sometimes but one side of the soft palate is paralyzed, which you recognize by its relaxed condition and irregular outline, the uvula being drawn towards the sound side. These symptoms may continue a day or two, or they may entirely disappear, the disease extending no farther, or the eye may become affected, and when it does so, it always follows the throat affection, and precedes the paralysis of the limbs. Next amaurosis or strabismus, if the eyes are at all affected, always follows after paralysis of the palate, and before the extremities become involved. Deafness may follow amaurosis, then the lower limbs become affected, next the upper extremities, then the muscles of the alimentary canal and bladder, the respiratory muscles, and in some very rare cases the muscles of the heart. The paralysis may not be confined to loss of motion, for in a majority of cases sensation is either modified or lost. There are many cases recorded, where the disease has not gone on to loss of motion, the nerves of sensation only being affected; or in others, sensation being much modified, is associated with muscular feebleness. Very many cases have been limited to loss of power and sensation of the soft palate. The invasion of these different parts comes on slowly, gradually involving one limb before it extends to the other."

The *prognosis* of this affection is favourable; of the 77 cases collected by Dr. R. only nine deaths are recorded.

The disease will in time usually disappear without treatment. But recovery may be promoted by tonics, as iron, quinine, good diet, sea bathing, and pure air. Strychnia, electricity, &c., have also been considered useful.

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Addison's Disease.—Dr. Edward B. Dalton, in his Inaugural Dissertation presented to the College of Physicians and Surgeons, New York (*New York Journ. Med.*, May, 1860), gives a very candidly drawn up exposition of our existing knowledge in regard to the disease known as bronzed skin, or disease of the supra-renal capsules, and from a critical review of all the facts, he draws the following conclusions:—

"A peculiar and usually fatal disease has, within a few years, attracted the attention of the medical profession for the first time. Its symptoms are, princi-

pally, general debility, anæmia, feebleness of the heart's action, irritability of the stomach, and, as an almost pathognomonic sign, a most characteristic discoloration of the skin. The most diligent and skilful examination can detect no adequate cause for these symptoms, against the increasing severity of which medical treatment seems wholly ineffectual.

"The essential pathological condition of this disease is as yet unknown.

"From a critical survey of the evidence bearing upon this point, laying especial stress upon those well-attested post-mortem examinations where complete disorganization of the capsules was found unaccompanied by any sign of bronzed skin, I think it reasonable to decide that there is no direct mutual dependence, as of cause and effect, between bronzed skin, with its accompanying symptoms, and a morbid state of the supra-renal capsules. Whether, in some cases, there be some indirect and less important connection, arising out of the anatomical relations of these bodies, I do not undertake to say."

Fœtus carried Twenty-two Months beyond Term.—Dr. JAMES M. BUZZELL, of Springfield, communicated to the Boston Society for Medical Improvement, the following case.

The subject of it, aged forty-two years, had had five children by her first husband. A year after his death, in 1850, she was married a second time. After her second marriage she had several miscarriges, and in the month of November, 1857, she became convinced that she was again pregnant, from the quickening, and other usual signs of pregnancy which she then experienced. By great care on her part she went the full period of pregnancy before any symptoms of labour appeared. At the time she expected to be confined, her breasts filled with milk, and her nurse was obliged to draw them for several days. In the month of April, 1858, she was supposed to be in labour, and sent for her family physician to attend her. He had been skeptical in regard to the fact of her pregnancy, but on his arrival, supposed he had formed an incorrect diagnosis. The pains, however, were not constant or of much force, and soon subsided entirely, never to return as true labour-pains, although she had at intervals, for two months afterwards, occasional attacks of pain in the sides, which finally ceased. She had menstruated some two or three times during the nine months of gestation, as had been the case with her once or twice before, during pregnancy, and afterwards the catamenia appeared at irregular intervals up to the time of her death, though the quantity was small. She enjoyed, to all appearance, good health up to October last, was fleshy, and capable of performing considerable labour. After the time of expected confinement, the size of the abdomen gradually lessened for about six months, when the *tumour*, as it was now supposed to be, was as large as a full-grown fœtus.

In October last, she fell down a flight of steps, by which she received a severe shock. She afterwards complained greatly of pain in the back and bowels. Dr. Buzzell first saw her at this time. She had much fever, and great pain and tenderness of the abdomen, which made it impossible to make a satisfactory examination for two or three weeks. There was a severe cough, which aggravated her pain. Nausea and vomiting occurred every two or three weeks. As soon as a favourable opportunity occurred, Dr. B. made an examination per vaginam, and found the os uteri entirely closed, and the cervix obliterated; the uterus forming a solid tumour, fixed and immovable by any pressure of the hand or finger. Four weeks after the accident a diarrhœa occurred, of a large quantity of offensive matter, which was not seen by Dr. Buzzell. The paroxysms of nausea and vomiting increased in frequency and intensity until her death, which took place on the 14th of February.

At the *autopsy* a very extensive adhesion was found between the fundus of the uterus and the small intestines, and also between its side and the sigmoid flexture of the colon. The Fallopian tubes and ovaries were found in their natural relations to the uterus. The uterus contained a fœtus in the natural position for delivery, but no trace of a placenta could be found. There was about a pint of thick, yellow fluid in the uterine cavity. An opening in the left side of the uterus communicated with the interior of the colon, and the left hand and forearm of the fœtus were passed into the bowel, as far as the elbow. Fecu-

lent matter had passed into the cavity of the womb. The os uteri was entirely closed, and no trace could be found of it upon the inside.—*Boston Med. and Surg. Journal*, June 14th, 1860.

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Alarming Symptoms caused by the Displacement of Artificial Teeth during Etherization.—Dr. J. Mason Warren stated to the Boston Society for Medical Improvement, that he lately had occasion to etherize a lady, thirty-five years old, in order to examine a painful tumour of the leg. She came quietly under the effects of the ether, but did not rouse afterwards. The pulse was good, and there were no symptoms of dyspnœa. She gradually became purple in the face, was quite insensible, and seemed to be passing into a dying state. Introducing his fingers into the mouth, in order to draw the tongue forward, Dr. W. found a complete set of upper teeth, attached to a gold plate, deep in the fauces. This was removed, the fauces irritated, the patient rubbed, &c., and at last vomiting was brought on, and she revived. She soon became violently delirious, uttering shrill cries, and beating herself, for an hour and a half. For the next two hours she was in a croupy state, from the violence of her efforts, but in the course of the evening she gradually recovered, though she remained hoarse for two days. Dr. W. observed that the accident was one likely to occur under such circumstances, and showed the expediency of removing artificial teeth before proceeding to etherize a patient.—*Boston Med. and Surg. Journal*, June 14th, 1860.

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Anæsthesia and Anæsthetics.—Dr. Edward R. Squibb, in an interesting paper on this subject (*American Medical Times*, June 2, 1860), gives the following rules for the administration of anæsthetics:—

"First. That anæsthetics should be given slowly and carefully, with free, unlimited admixture of air, so that there should never be any choking or spasmodic action of the glottis. Secondly. That they should only be given at the time when the effect is needed, and be abandoned the moment the necessity is past. Thirdly. That not only should the pulse and respiration be watched carefully during the whole period of insensibility, and be kept as near the normal standard as possible, but the slightest amount of blueness or lividity should be regarded as an indication of asphyxia, and be promptly responded to by a more free admission of air."

As regards the choice between the two anæsthetics in common use, he says: "Chloroform is much less liable to produce cyanosis or asphyxia, because it is effective in much smaller quantity than ether, and does not, therefore, displace so much air in the respiratory process. The writer has never noticed any degree of blueness from the use of chloroform, but has often seen it in the use of ether. On the other hand, unless chloroform be given with far more care than is necessary with ether, it is, from its greater efficiency, much more liable to produce hyperanæsthesia, and to paralyze the heart and respiratory muscles. Hence chloroform, under ordinary circumstances, must be considered more dangerous to life, because its greater efficiency and activity, while they render it less liable to produce asphyxia, render it more liable to produce the other accidents of anæsthetic practice. The balance against it is, however, more applicable to its common and indiscriminate use, than when applied with the care and precaution indicated in the foregoing remarks; and there is, probably, quite a large class of cases in which it cannot judiciously be replaced by any other agent, as, for instance, in parturition; in uremic convulsions of gestation and parturition; and, in short, whenever an intermittent and prompt effect are desirable, and the due precautions can be rigidly observed. In careful practice, with ordinary good judgment and observation, it has, in the writer's opinion, the advantage over ether in every point except the single important one that, in rare instances, it is liable to produce sudden fatal paralysis of the heart.

"Ether has been regarded as so safe an anæsthetic, that it is scarcely admitted as susceptible of doing harm; and the impression is very common that it can never endanger life. That either of these propositions can be accepted admits of great doubt.

"In the asphyxia from drowning, if the immersion be of short duration, and

if the muscular system has not lost its vital tonicity, it is usually only necessary to re-establish the respiration and circulation for a short time, by artificial means, to restore life. If that drowning be prolonged, however, by repeated short immersions, so that the same inefficient condition of the circulating blood be brought about during a half or three-quarters of an hour of struggling, and with depressing influences from other sources, as of previous disease or injury, so that the powers of endurance are worn out, and passive exudations are permitted to accumulate and obstruct the pulmonary air-cells, the result would, probably, be very different. A condition of vital depression would be established which might very slowly go either way in the balance between life and death, but which would probably, in case of other coinciding influences, as after a serious surgical operation, ultimately terminate fatally. The partial asphyxia produced by a prolonged etherization is a nearly parallel case under ordinary circumstances; and here, as in other instances, pernicious influences may be masked by the complication and remoteness of the results.

"So strongly has the writer's attention been drawn to these circumstances, by seeing and hearing of the profuse and wasteful use of ether, that it is a prominent object of this article to invite the profession to a closer scrutiny and observation of the effects; and if two or three fluidounces of ether be found to produce a safer and better effect than double that quantity, an important point will have been attained.

"The method of administering ether adopted by some close observers is one which appears well adapted to insure a due admixture of air. A folded napkin is rolled into the form of a cylinder, or truncated cone, and secured at the overlapping edges by two pins. The larger end is made wide enough to cover the nose and mouth, the nose fitting into a notch, where the two edges of the napkin at the widest end fail to overlap. The opening at the small end should be at least one and a half inches in diameter, and the larger the better. If anything be needed to give stiffness and form to this cone, a piece of pasteboard laid between the folds of the napkin before it is rolled up, will accomplish this purpose. This cone is held in the hand of the person who gives the ether, and as a matter of economy it may be removed from the face during each expiration. About two fluidrachms of ether is poured upon the inside of the napkin at a time, and renewed as often as may be requisite.

"In the administration of ether for anæsthetic purposes, at least three well-marked stages are commonly observable, and the duration of each varies very much with the temperament of the individual, the condition of the stomach, and the quality of the ether used. One of these stages, namely, that of excitement and delirium, and the only troublesome one, has been hitherto supposed to be shorter in proportion as the ether contained less alcohol; but some very recent observations made by the intelligent House-Surgeon of the New York Hospital, Dr. Weir—though as yet very limited in number—would appear to indicate that the point of maximum, or best effect in this respect, may be overreached, or that a determinate small proportion of alcohol in the ether may be useful. At least, Dr. Wier has been very naturally led to this inference by the effect of giving a small amount of brandy before the anæsthetic; and subsequently by the use of alcoholic ether. He, however, states distinctly, that as yet his observations are not sufficiently numerous to be relied upon. An occasional accident in the prolonged use of ether, for the mention of which the writer is also indebted to Dr. Weir, is the occasional occurrence of a smart, ephemeral, irritative fever, which follows within twenty-four hours. In view of the circumstance that the local effect of ether is irritant to the extent of producing vesication when confined upon delicate surfaces, it may be easily understood that its application over the large and delicate mucous lining of the bronchial ramifications, throughout an unusually tedious and difficult operation, might produce a transient inflammatory effect."

JEFFERSON MEDICAL COLLEGE.

The next Session will commence on Monday, the 8th of October, with a general Introductory Lecture by one of the Professors. The regular lectures will begin the day after. The Session will terminate on the last day of February.

ROBERT M. HUSTON, M. D., { Emeritus Professor of Materia Medica and General Therapeutics.

Institutes of Medicine, etc., ...	By Prof. ROBLEY DUNGLISON, M. D.
General, Descriptive and Surgical Anatomy, .	" JOSEPH PANCOAST, M. D.
Obstetrics and Diseases of Women and Children,	" CHARLES D. MEIGS, M. D.
Chemistry, ...	" FRANKLIN BACHE, M. D.
Institutes and Practice of Surgery, . .	" SAMUEL D. GROSS, M. D.
Materia Medica and General Therapeutics, .	" THOMAS D. MITCHELL, M. D.
Practice of Medicine, ...	" SAMUEL H. DICKSON, M. D.

Demonstrator of Anatomy, . . ELLERSLIE WALLACE, M. D.

Clinics will be held regularly during September; and every Wednesday and Saturday in October, and during the course, Medical and Surgical cases will be investigated, prescribed for, and lectured on before the Class. During the year ending March the first, 1860, a vast number of medical and surgical cases were treated, and above *three hundred* operations were performed; amongst them many major operations—as amputation of the leg, extirpation of the upper jaw and mamma, and several cases of lithotomy.

The lectures are so arranged as to permit the student to attend the clinics of the Pennsylvania Hospital, and of the Philadelphia Hospital.

On and after the 1st of October, the dissecting-rooms will be open, under the direction of the Professor of Anatomy and the Demonstrator.

FEES.

Matriculation, which is paid only once, ...	$ 5
To each Member of the Faculty $15, ...	105
Graduation, ...	30

ROBLEY DUNGLISON, M. D.,
Dean of the Faculty.

HARVARD UNIVERSITY.

MASSACHUSETTS MEDICAL COLLEGE.

THE Annual Course of Medical Lectures of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on the first Wednesday of November, 1860. The regular course will be as follows:—

D. HUMPHREYS STORER, M. D.,	Professor of Obstetrics and Medical Jurisprudence.
JOHN B. S. JACKSON, M. D.,	Professor of Morbid Anatomy.
HENRY I. BOWDITCH, M. D.,	Professor of Clinical Medicine.
OLIVER W. HOLMES, M. D.,	Professor of Anatomy and Physiology.
GEORGE C. SHATTUCK, M. D.,	Professor of Theory and Practice of Medicine.
HENRY J. BIGELOW, M. D.,	Professor of Surgery.
JOHN BACON, M. D.,	Professor of Chemistry.
EDWARD H. CLARKE, M. D.,	Professor of Materia Medica.

RICHARD M. HODGES, M. D., Demonstrator.

Clinical Medical and Surgical Instruction is given at the Massachusetts General Hospital, with surgical operations.

Collateral special medical instruction will also be given at the Hospital by lectures and otherwise, by Drs. Bowditch, Abbot, and Ellis. Abundant material is afforded for the study of Practical Anatomy. The room devoted to this department is open day and evening, and lighted by gas.

Fees for the Lectures, $80. Matriculation Fee, $3. Graduation Fee, $20.

Good Board can be obtained at $2 50 to $5 per week. Boarding places provided on application to the Janitor at the College.

Students are requested, upon coming to Boston, to call upon the Dean.

D. HUMPHREYS STORER, Dean of the Faculty,
July 1, 1860. *No. 132 Tremont Street, Boston.*

COLLEGE OF PHYSICIANS AND SURGEONS,

CORNER OF TWENTY-THIRD STREET AND FOURTH AVENUE, NEW YORK.

FIFTY-FOURTH SESSION—1860-61.

Edward Delafield, M. D., President of the College, and Professor Emeritus of Obstetrics.
Alexander H. Stevens, M. D., LL. D., Professor Emeritus of Clinical Surgery.
John Torrey, M. D., LL.D., Professor Emeritus of Chemistry and Botany.
Joseph M. Smith, M. D., Professor of Materia Medica and Clinical Medicine.
Robert Watts, M. D., Professor of Anatomy.
Willard Parker, M. D., Professor of the Principles and Practice of Surgery and Surgical Anatomy.
Chandler R. Gilman, M. D., Professor of Obstetrics, the Diseases of Women and Children, and Medical Jurisprudence.
Alonzo Clark, M. D., Professor of Pathology and Practical Medicine.
John C. Dalton, Jr., M. D., Professor of Physiology and Microscopic Anatomy.
Samuel St. John, M. D., Professor of Chemistry.
Thomas M. Markoe, M. D., Lecturer Adjunct to the Professor of Surgery.
George T. Elliot, M. D., Lecturer Adjunct to the Professor of Obstetrics.
Henry B. Sands, M. D., Demonstrator of Anatomy, and Curator of the College Museum.

The Session for 1860-61 will commence on Monday, the 22d of October, 1860, and will continue till the middle of March following.

FEES.

For a full course of lectures . . .	$105 00
Graduation fee	25 00
Demonstrator's fee	5 00
Matriculation fee	5 00

JOHN C. DALTON, Jr., M D.,
Secretary of the Faculty.

MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA.

The Annual Course of Lectures in this Institution will commence on the *first day of November,* on the following branches:—

Anatomy	J. E. Holbrook, M. D.
Physiology	James Moultrie, M. D.
Surgery	J. J. Chisholm, M. D.
Institutes and Practice of Medicine .	E. Geddings, M. D.
Materia Medica	Henry R. Frost, M. D.
Obstetrics	Thomas G. Prioleau, M. D.
Chemistry	C. U. Shepard, M. D.
Demonstrator and Assistant Prof. of Anatomy	Francis T. Miles, M. D.
Assistant Demonstrator of Anatomy .	Samuel Logan, M. D.

CLINICAL LECTURES.

F. Peyre Porcher, M. D., Physician to the Marine Hospital and Clinical Instructor, lectures twice a week on the diseases of that Institution.

At the *Roper Hospital* Clinical Lectures are delivered twice a week by the Physician and Surgeon of the Institution, and operations performed before the class in the Amphitheatre of the Hospital.

The *Faculty Ward in the Roper Hospital*, by the conveniences which have been furnished, is a valuable addition to the surgical practice of the city. Operations are performed before the class, and students have opportunities of being made familiar with the subsequent treatment.

The Anatomical Rooms will be opened in October, and dissections conducted daily by the Demonstrator. Much attention is directed to this department; the material being abundant, and illustrations of a varied character being afforded for acquiring a competent knowledge of this very important branch.

The Faculty of the Medical College of the State of South Carolina take pleasure in calling the attention of the friends of the Institution to its present prosperous condition. They have been enabled, by the liberality of the Legislature, to make such alterations in extending and improving the College building as will promote materially the comfort of those in attendance on the Lectures.

The Anatomical Theatre has been enlarged and completely renovated, and such

MEDICAL COLLEGE OF SOUTH CAROLINA—Continued.

changes made as will secure free ventilation, with a pleasant arrangement of the seats. They confidently believe that it will not suffer in comparison with any like structure in the United States, the edifice, with its appurtenances, being as commodious and attractive as any such establishment in the country. By the same appropriation of the Legislature, they have been enabled to make considerable addition to the Museum of the College.

In the Surgical department considerable additions have been made in drawings, plates, &c., and the collection of articles in the Materia Medica has been made very extensive and complete.

The Anatomical Museum has been much enlarged by models of the sympathetic nerve, and the superficial veins, lymphatics, and nerves.

There has also been added a valuable and interesting collection in wax, illustrating various parts of the body in a healthy and diseased state.

HENRY R. FROST, *Dean.*

June 23, 1860.

NEW ORLEANS SCHOOL OF MEDICINE,

SITUATED ON COMMON STREET, OPPOSITE THE CHARITY HOSPITAL.

The Regular Course of Lectures in this Institution will commence on Thursday, the 15th of November, 1860, and terminate in the latter part of March, 1861.

FACULTY.

Erasmus D. Fenner, M. D., Professor of Theory and Practice of Medicine.
Austin Flint, M. D., Professor of Clinical Medicine and Medical Pathology.
Anthony A. Peniston, M. D., Professor of Anatomy.
Austin Flint, Jr., M. D., Professor of Physiology and Microscopy.
Samuel P. Choppin, M. D., Professor of Clinical and Operative Surgery.
Cornelius C. Beard, M. D., Professor of the Principles of Surgery and Surgical Pathology.
D. Warren Brickell, M. D., Professor of Obstetrics and Diseases of Women.
Isaac L. Crawcour, M. D., Professor of Chemistry and Medical Jurisprudence.
Howard Smith, M. D., Professor of Materia Medica and Therapeutics.

The Dissecting Rooms will be opened on the 15th of October. Clinical instruction will be given *daily* in the wards of the Charity Hospital, and three times a week at the College Dispensary, where the patients number about one hundred a week.

The College is located within thirty steps of the Charity Hospital, an advantage not possessed by any other in this country.

The Faculty of this Institution are amongst the duly elected Visiting Physicians and Surgeons of the Charity Hospital, and, according to a late Act of the State Legislature, "shall at all times have free access to the Hospital, for the purpose of affording their Pupils practical illustration of the subjects they teach."

The Board of Administrators elect annually, in April, twelve Resident Students, who are furnished board and lodging in the Hospital, and the Students of this School are equally eligible to this place with any others.

The great aim of this Institution is, not only to thoroughly indoctrinate the Student of Medicine in the fundamental principles of Medicine by abstract Lectures, but, by drilling him *daily* at the bedside of the sick man, to send him forth at once qualified to recognize and to treat Disease. For this great purpose, the Charity Hospital, situated at our very door, affords opportunities unequalled in this country. The distinguished abilities of Prof. A. Flint, both as a lecturer and writer on Clinical Medicine, will here find an admirable field for display.

Dissecting material is abundant in New Orleans, and Practical Anatomy will be thoroughly taught. Besides spacious, well-ventilated, and well-lighted Dissecting Rooms for the use of Students, a large and well-arranged Private Dissecting Room is fitted up for the especial use of practitioners who matriculate in this Institution.

The Professors will take pleasure in aiding Students to procure cheap and comfortable board and lodging.

Amount of fees for the full Course of Lectures . . .	$108 00
Matriculation fee (paid but once)	5 00
Dissection fee	10 00
Graduating fee	25 00

For any further information, address

E. D. FENNER, M. D., *Dean of the Faculty,*
No. 5 Carondelet Street.

New Orleans, June, 1860.

PENNSYLVANIA COLLEGE—MEDICAL DEPARTMENT.

NINTH STREET, BELOW LOCUST, PHILADELPHIA.

SESSION OF 1860–61.

FACULTY.

B. Howard Rand, M. D.,	Professor of	Chemistry.
Henry Hartshorne, M. D.,	"	Practice of Medicine.
Lewis D. Harlow, M. D.,	"	Obstetrics, &c.
William S. Halsey, M. D.,	"	Surgery.
Wm. Hembel Taggart, M. D.,	"	Materia Medica.
James Aitken Meigs, M. D.,	"	Institutes of Medicine.
Wm. H. Gobrecht, M. D.,	"	Anatomy.

Theodore A. Demmé, M. D., Demonstrator of Anatomy.

The Session of 1860–61 will commence on Monday, 8th of October, and continue, without intermission, until the first of March. The Commencement for conferring Degrees will take place early in March, causing as little detention of the Graduating Class, after the close of the Lectures, as possible.

The Rooms for Practical Anatomy will be open early in September.

The College Clinic will be conducted on every Wednesday and Saturday throughout the Session.

The Register of Matriculants will be open in the College Building, early in September. The Janitor will always be present at the College, to give every necessary assistance and information (as regards board, &c.) to students, on their arrival in the city.

Fees.—Matriculation (paid once only), $5 00; For each Professor's ticket, $15 00; Graduation, $30 00.

LEWIS D. HARLOW, M. D., *Dean*,
No. 1023 *Vine below* 11*th Street.*

MEDICAL COLLEGE OF VIRGINIA,

AT RICHMOND.

SESSION OF 1860–61.

The Course of Lectures will commence on the first Monday in October, and continue until the 1st of March.

Charles Bell Gibson, M. D.,	Professor of	Surgery and Surgical Anatomy.
David H. Tucker, M. D.,	"	Theory and Practice of Medicine.
Beverly R. Wellford, M. D.,	"	Materia Medica and Therapeutics.
A. E. Peticolas, M. D.,	"	General and Special Anatomy.
Levin S. Joynes, M. D.,	"	Institutes of Medicine and Medical Jurisprudence.
James H. Conway, M. D.,	"	Obstetrics and Diseases of Women and Children.
James B. McCaw, M. D.,	"	Chemistry and Pharmacy.

Marion Howard, M. D., Demonstrator of Anatomy.

The recent appropriation of $30,000 to this Institution by the Legislature of Virginia will enable the Faculty to enlarge the facilities for instruction in a most important degree. The illustrations in every department will be multiplied and improved, and a commodious Hospital is now in course of construction, in immediate proximity to the College, which will greatly extend the facilities for clinical instruction. Students will also have access to the wards of the Richmond Almshouse.

The supply of material for Dissection is ample.

Two prizes, of *Fifty Dollars* each, are offered to candidates for graduation—one for the best Essay on any Surgical subject, the other for the best Essay on any subject pertaining to the Theory or Practice of Medicine.

FEES.

Matriculation	$5 00
Ticket of each Professor $15	105 00
" Demonstrator of Anatomy	10 00
Graduation	25 00

L. S. JOYNES, M. D.,
Dean of the Faculty.

GRADUATES OF THE UNIVERSITY OF PENNSYLVANIA, 1859.

At a Public Commencement, held March 15th, 1860, in the Musical Fund Hall, the Degree of Doctor of Medicine was conferred by JOHN F. FRAZER, LL. D., Vice-Provost, upon the following gentlemen; after which an Address was delivered by JOSEPH CARSON, M. D., Professor of Materia Medica.

NAME.	TOWN OR P. O.	COUNTY.	STATE.	SUBJECT OF THESIS.
Ackley, J. B.	Philadelphia,		Pa.	The Phenomena of Reproduction.
Albright, Joseph S.	Hamburg,	Berks,	Pa.	Complicated Delivery of the Placenta.
Applebach, Nelson	Applebachville,	Bucks,	Pa.	Scarlatina
Arnold, Thomas T.	Comorn,	King George,	Va.	The Circulation of Blood.
Ashurst, John, jr.	Philadelphia,		Pa.	Nervous Action.
Bacon, W. C.	Upper Darby,	Delaware,	Pa.	The Absorption and Circulation of Matter in Exogenous Plants.
Bagnall, Richard D.	Norfolk,	Norfolk,	Va.	Iron.
Barnett, Benj. Neville	Yazoo City,	Yazoo,	Miss.	Leucorrhœa.
Burton, Henry L.	La Grange,	Fayette,	Tenn.	Mutual Relation of Mind and Body.
Buster, W. L.	Memphis,	Shelby,	Tenn.	Iodine.
Carden, Peter S.	Clover Depot,	Halifax,	Va.	Acute Gastritis.
Carr, George W.	Providence,		R. Island.	The Pleasures of "Hashecsh."
Carter, Robert K.	Newtown P. O. or Stephensburg,	Frederick,	Va.	Scarlet Fever.
Christ, Theodore S.	Lewisburg,	Union,	Pa.	Chorea Sancti Viti.
Clarke, Edward	Scarborough,		England.	Anæsthesia in Surgery.
Clark, Jonathan B.	New Salem,	Randolph,	N. C.	Post-partum Hemorrhage.
Clarke, John J.	Mechanicsburg,	Cumberland,	Pa.	Formation and Development of Man.
Cleborne, Christ'r Jas.	Philadelphia,		Pa.	Asclepias Syriaca.
Cohen, J. Solis	Memphis,	Shelby,	Tenn.	Fractures.
Collins, James	Philadelphia,		Pa.	The Pathology and Diagnosis of Mammary Tumors.
Commander, Jos., jr.	Elizabeth City,	Pasquotank,	N. C.	Stillingia Sylvatica.
Comfort, A. Ivins	Philadelphia,		Pa.	Dissertatio Medica de Corpusculis.
Cook, William M.	Prairie Bluff,	Wilcox,	Ala.	Heat.
Cornick, William F.	Norfolk,	Norfolk,	Va.	Menstruation.
Cox, Henry S.	Mt. Pleasant,	Maury,	Tenn.	Pneumonia.
Cowan, Isaac F.	Camden,		N. J.	Anatomy and Conservative Surgery of the Hand.
Cowie, Andrew J.	Liverpool,		Nova Scotia.	Diphtheria.
Crawford, Robt. (M. D.)	Cooperstown,	Venango,	Pa.	Epidemic Dysentery.
Darden, James H.	Piney Grove,	Sampson,	N. C.	Enteric Fever.
Dick, Walter B.	Philadelphia,		Pa.	The Tongue, Anatomically and Physiologically considered.
Dilworth, Joseph B.	Philadelphia,		Pa.	Enteric Fever.
Dixon, William C.	Philadelphia,		Pa.	Anatomy of the Fœtus.
Draper, James A.	Camden,	Kent,	Del.	The Effects and Pathological Changes induced by Penetrating Wounds of the Chest.
Duer, Edward L.	Crosswicks,	Burlington,	N. J.	Acute Dysentery.
Dunn, William A.	Raleigh,	Wake,	N. C.	Enteric Fever.
Edwards, Nicholas M.	La Fayette,	Christian,	Ky.	Physiology of Sleep.
Ellegood, William T.	Concord,	Sussex,	Del.	Fibrin.
Elmer, Robert W.	Bridgeton,	Cumberland,	N. J.	Ergota.
Erdman, W. B.	Macungie,	Lehigh,	Pa.	Peritonitis.
Fauntleroy, A. M.	Winchester,	Frederick,	Va.	Des Signs de la Grossesse,
Finney, James B.	Harrisburg,	Dauphin,	Pa.	Mortality in large Cities.
Fleming, Albert Wayne	Mobile,	Mobile,	Ala.	Tetanus.
Fletcher, J. S. (M. D.)	Murfreesboro',	Rutherford,	Tenn.	The Effects of Alcohol upon the Human System.

NAME.	TOWN OR P. O.	COUNTY.	STATE.	SUBJECT OF THESIS.
Fort, William S.	Lambertville,	Hunterdon,	N. J.	The Phenomena of Menstruation.
Franklin, Edward C.	Providence,		R. I.	Phthisis Pulmonalis.
Galt, Robert	Columbia,	Fluvanna,	Va.	Amputation.
Gaskins, James H.	Norfolk,	Norfolk,	Va.	Acute Pleurisy.
Goddard, Kingston, jr.	Cincinnati,	Hamilton,	Ohio.	Varicocele.
Graham, Joseph D.	Draper's Valley,	Pulaski,	Va.	Enteric Fever.
Gray, William H., jr.	Philadelphia,		Pa.	Phthisis.
Green, William	Trenton,	Mercer,	N. J.	Influence of the Mind in Disease.
Hackley, Charles E.	Philadelphia,		Pa.	Cancer.
Hardeman, John	Clinton,	Jones,	Ga.	Apoplexy.
Harris, Henry H.	Forestville,	Wake,	N. C.	Bright's Disease.
Harris, Robert	Harrisburg,	Dauphin,	Pa.	Phthisis.
Harris, Robert B.	Jefferson,	Rutherford,	Tenn.	Anæsthesia in Parturition.
Hayes, Joseph Byron	Canandaigua,		N. Y.	De Inflammationis Curatione.
Hayley, L. B.	Barton,	Franklin,	Ala.	Thesis.
Hendrie, W. Scott	Doylestown,	Bucks,	Pa.	Intussusception.
Hewston, Geo. (M. D.)	Philadelphia,		Pa.	
Hillier, Joseph W.	Cooperstown,	Venango,	Pa.	The Menses.
Hinton, John R.	Petersburg,	Dinwiddie,	Va.	Intermittent Fever.
Hoehling, Adolphus A.	Philadelphia,		Pa.	Enteric Fever.
Holliday, S. T.	Winchester,	Frederick,	Va.	Intermittent Fever.
Huggins, Jacob, jr.	New Berne,	Green,	Ala.	Special Sensations in Diagnosis.
Hunter, Andrew, jr.	Charlestown,	Jefferson,	Va.	Hereditary Influence.
Hunter, Frederick	Bladensburg,	Prince George,	Md.	Stone in the Bladder.
Jacobs, Theodore	Norristown,	Montgomery,	Pa.	Dislocations and Fractures of the Femur.
Jaquett, George P.	Salem,	Salem,	N. J.	Acute Dysentery.
Jennings, William M.	Titusville,	Crawford,	Pa.	Pneumonia.
Jones, Isaac N.	La Grange,	Fayette,	Tenn.	The Blood.
Jones, Samuel J.	Bainbridge,	Lancaster,	Pa.	Miasmatic Fever.
Kennard, William R.	Livingston,	Sumter,	Ala.	Enteric Fever.
Kimbrough, M. D.	Huntsville,	Yadkin,	N. C.	Intermittent Fever.
Kinsey, Thomas J.	Washington,	Rappahannock,	Va.	Scarlet Fever.
Lawing, John M.	Charlotte,	Mecklenburg,	N. C.	Anæsthésie dans l'Accouchement.
Lewis, Joel B.	Tarboro',	Edgecombe,	N. C.	Difficulties attending the Practice of Medicine in the Country in the South.
Lippincott, Allen	Fallsington,	Bucks,	Pa.	The Treatment of Intermittent Fever.
Love, William S.	Natchez,	Adams,	Miss.	Croup.
Martin, Richard A.	Milford,	Kent,	Del.	Paralysis.
McClenahan, William	Pittsboro',	Chatham,	N. C.	Tobacco Dyspepsia.
McClure, A. W. (M.D.)	Mount Pleasant,	Henry,	Iowa.	Bronchitis.
McGee, James W.	Kenansville,	Duplin,	N. C.	Chorea.
McKenzie, Sultan W.	St. Matthews,	Orangeburg Dist.,	S. C.	Phthisis Pulmonalis.
McLean, John K.	Cheraw,	Chesterfield Dist.,	S. C.	Enteric Fever.
McNeill, T. C.	Paris,	Henry,	Tenn.	The Detection of Arsenic in Chemico-Legal Investigations.
Meux, Thomas R.	Wesley,	Haywood,	Tenn.	Pneumonia.
Miller, George W.	Philadelphia,		Pa.	Tetanus.
Milton, James H. F.	Kingsessing,	Philadelphia,	Pa.	Diagnosis.
Mims, Alexander D.	Prattville,	Autauga,	Ala.	Inflammation.
Morrison, Gilbert M.	Springfield,	Richmond,	N. C	Enteric Fever.
Moffett, James	Holly Retreat,	Wilkinson,	Miss.	Tetanus.
Morse, T. D.	Pleasant Ridge,	Princess Anne,	Va.	Bilious Remittent Fever.
Nesbit, Louis R.	Hernando,	De Soto,	Miss.	Enteric Fever.
Oates, D. Dunlap	Wacahoota,	Marion,	Fla.	Opium.
Peets, George Halsey	Percy's Creek,	Wilkinson,	Miss.	Gossypium Herbaceum.
Petway, Phesanton S.	Tarboro',	Edgecombe,	N. C.	Health — Mentally and Bodily.
Pickett, J. R.	Washington City,		D. C.	Yellow Fever.

NAME.	TOWN OR P. O.	COUNTY.	STATE.	SUBJECT OF THESIS.
Pile, Charles H.	Philadelphia,		Pa.	Diabetes.
Pope, F. E.	Hernando,	De Soto,	Miss.	Physiology.
Pratt, Nathan	Hazlettville,	Kent,	Del.	Diabetes.
Purnell, William I. F.	Berlin,	Worcester,	Md.	Blennorrhagia.
Puryear, James D.	Oak Hill,	Granville,	N. C.	Enteric Fever.
Randolph, Archy Cary	Millwood,	Clarke,	Va.	Dropsy.
Ray, J. Edwin	Paris,	Bourbon,	Ky.	Remittent Fever.
Recio, Serapio	Puerto Principe,		Cuba.	The Signs and Symptoms of Fever.
Reeves, Jas. E. (M.D.)	Phillippi,	Barbour,	Va.	
Rice, William	Buckingham,	Bucks,	Pa.	Indigestion and Dyspepsia.
Richardson, Joseph S.	Hintonsville,	Pasquotank,	N. C.	Utero-Gestation.
Roach, Elisha D.	Napan,	Cumberland,	N. S.	Hemorrhagia Uterina.
Robertson, S. G.	Somerville,	Fayette,	Tenn.	Intermittent Fever.
Robinson, John M.	Miamiville,	Clermont,	Ohio.	Phthisis Pulmonalis.
Roebuck, Peter J.	East Hanover,	Lebanon,	Pa.	Pneumonia.
Roseberry, Charles J.	Easton,	Northampton,	Pa.	Typhlitis.
Rossiter, Joseph P.	Norristown,	Montgomery,	Pa.	Fractures.
Row, Lewis	Tunica,	West Feliciana,	La.	Erysipelas.
Rountree, Scott L.	Williamsport,	Maury,	Tenn.	Pernicious Fever.
Savage, Thomas J.	Selma,	Dallas,	Ala.	Placenta Prævia.
Scales, N. M.	Old Richmond,	Forsythe,	N. C.	Rheumatism.
Schelly, Ambrose Y.	Hereford,	Berks,	Pa.	Scarlatina.
Schenck, Peter V.	Camden,	Camden,	N. J.	Medicine, and Medical Men.
Shackleford, Wm. C.	Stony Point,	Albemarle,	Va.	Circulation and Functions of the Blood.
Shaw, Robert G.	Fairfield,	Bedford,	Tenn.	Pernicious Fever.
Sherard, Christoph. C.	Mobile,	Mobile,	Ala.	Pneumonia.
Sherk, J. Henry	West Hanover,	Dauphin,	Pa.	Colica Pictonum.
Shoemaker, Joseph T.	Chester,	Delaware,	Pa.	Disease.
Shorb, J. Campbell	Emmittsburgh,	Frederick,	Md.	Pus.
Slack, J. H.	Philadelphia,		Pa.	Glonoine.
Smith, J. P.	Miccosukie,	Leon,	Fla.	Circulation of Blood.
Smith, L. Turner	Wilton,	Granville,	N. C.	Lobar Pneumonia.
Snare, Edmund	Huntingdon,	Huntingdon,	Pa.	Placebos.
Sutton, R. F. Q.	Buenos Ayres,	South America,		Yellow Fever.
Snyder, Ezra H.	Danville,	Montour,	Pa.	Scarlatina.
Stallings, Thomas D.	Greenville,	Butler,	Ala.	Enteric Fever.
Stathem, Thomas E.	Greenwich,	Cumberland,	N. J.	Fever.
Stein, Luther K.	Myerstown,	Lebanon,	Pa.	Wounds.
Stein, Edward M.	Richmond,	Henrico,	Va.	Inflammation of Lungs.
Stewart, Lawrence	Lauriuburgh,	Richmond,	N. C.	Intermittent Fever.
Stinson, J. Frank	Sulphur Springs,	Merriwether,	Ga.	Intermittent Fever.
Stormont, David W.	Grand View,	Edgar,	Ill.	Typhoid Pneumonia.
Sutton, William T. jr.	Merry Hill,	Bertie,	N. C.	Pleuritis.
Tatem, J. P.	Great Bridge,	Norfolk,	Va.	Pernicious Fever.
Taylor, H. Genet	Camden,	Camden,	N. J.	Scarlatina.
Temple, Wilson S.	Hintonsville,	Pasquotank,	N. C.	Miasma.
Terrill, R. M.	Orange C. H.	Orange,	Va.	Enteric Fever.
Terrell, Willis M.	Roxboro',	Person,	N. C.	Enteric Fever.
Thomas, Charles K.	Spread Eagle,	Chester,	Pa.	Tuberculosis.
Thompson, J. Wesley	Smithland,	Livingston,	Ky.	Anæsthesia.
Thompson, J. Cathmor	Mifflinburg,	Union,	Pa.	Disease of the Spinal Marrow.
Thompson, Eugene M.	Okolona,	Chickasaw,	Miss.	Epidemic Erysipelas.
Toxey, Caleb	Tuscaloosa,	Tuscaloosa,	Ala.	Cystitis.
Toxey, William S.	Tuscaloosa,	Tuscaloosa,	Ala.	Gonorrhœa.
Van Derslice, Aug. M.	West Hanover,	Dauphin,	Pa.	Acute Pleurisy.
Voorhies, Alfd. Hunter	Columbia,	Maury,	Tenn.	Chloroformum.
Waggoner, John S.	Carlisle,	Cumberland,	Pa.	Lumbar Abscess.
Warrington, C. B.	Swedesboro',	Gloucester,	N. J.	The Skin and its Functions
Weidman, W. Murray	Lebanon,	Lebanon,	Pa.	Iritis.
Wells, Henry M.	Northampton,	Hampshire,	Mass.	Yellow Fever.
Welling, E. Livingston (M. D.)	Pennington,	Mercer,	N. J.	Enteric or Typhoid Fever.
West, Joseph G.	Pughtown,	Chester,	Pa.	Incised Wounds.

NAME.	TOWN OR P. O.	COUNTY.	STATE.	SUBJECT OF THESIS.
Whistler, Wm. McNeill	Philadelphia,		Pa.	The Pathology and Treatment of White Swelling.
Widdifield, Caspar S.	Doylestown,	Bucks,	Pa.	Milk Sickness.
Williams, Thomas F.	Clarksville,	Montgomery,	Tenn.	Puerperal Convulsions.
Williamson, George R.	Berlin,	Marshal,	Tenn.	Belladonna.
Wilson, John H.	Milford Square,	Bucks,	Pa.	Electrical Changes as a Cause of Disease.
Wilson, John R.	Charlotte,	Mecklenburg,	N. C.	Scarlatina.
Wilson, W. Randolph	Chula,	Amelia,	Va.	Light.
Woods, Robert C.	Rocky Mount,	Franklin,	Va.	Enteric Fever.
Yeager, Theodore C.	Allentown,	Lehigh,	Pa.	Typhlitis.

At a public Commencement, held July, 1859, the Degree of Doctor of Medicine was conferred upon—

NAME.	TOWN OR P. O.	COUNTY.	STATE.
Atkinson, Isaac L.	Vincentown,	Burlington,	N. J.
Eagleton, James N.	Murfreesboro',	Rutherford,	Tenn.
Freeman, Wm. Henry	Philadelphia,		Pa.
Morris, Sidney R.	Philadelphia,		Pa.

Of the above, there are from—

Alabama	11	Iowa	1	Nova Scotia	2
Buenos Ayres	1	Kentucky	3	Ohio	2
Cuba	1	Louisiana	1	Pennsylvania	53
Delaware	4	Maryland	3	Rhode Island	2
Dist. of Columbia	1	Massachusetts	1	South Carolina	2
England	1	Mississippi	7	Tennessee	16
Florida	2	New Jersey	12	Virginia	22
Georgia	2	New York	1		
Illinois	1	North Carolina	21	Total	173

UNIVERSITY OF PENNSYLVANIA—MEDICAL DEPARTMENT.

NINETY-FIFTH SESSION (1860-61).

WILLIAM GIBSON, M. D., Emeritus Professor of Surgery.
GEORGE B. WOOD, M. D., Emeritus Professor of Theory and Practice of Medicine.

SAMUEL JACKSON, M. D., Professor of Institutes of Medicine.
HUGH L. HODGE, M. D., Professor of Obstetrics and the Diseases of Women and Children.
JOSEPH CARSON, M. D., Professor of Materia Medica and Pharmacy.
ROBERT E. ROGERS, M. D., Professor of Chemistry.
JOSEPH LEIDY, M. D., Professor of Anatomy.
HENRY H. SMITH, M. D., Professor of Surgery.
WILLIAM PEPPER, M. D., Professor of Theory and Practice of Medicine.

WILLIAM HUNT, M. D., Demonstrator of Anatomy.

The Lectures of the Session will begin on the second Monday of October and close on the first of March.

Clinical Instruction is given throughout the Session, in the Medical Hall, by the Professors, and at the Pennsylvania and other Hospitals.

The Dissecting Rooms, under the superintendence of the Professor of Anatomy and the Demonstrator, are open from the middle of September.

The room for Operative Surgery and the Application of Bandages, &c., is open early in September and throughout the Session, under the supervision of the Professor of Surgery.

Surgical Demonstrator, C. S. BISHOP, M. D.

Fees for the Lectures (each Professor $15)	$105
Matriculation Fee (paid once only)	5
Graduation Fee	30

R. E. ROGERS, M. D., *Dean of the Medical Faculty, University Building.*

SAMUEL PRICE, *Janitor, University Building.*

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1860.

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E. W. WOODSON, M. D., *of Woodville, Ky.*
J. J. WOODWARD, M. D., *of Philadelphia.*

TO READERS AND CORRESPONDENTS.

The following works have been received:—

Fourth Report of the Commissioners of Her Majesty's Customs. Presented to both Houses of Parliament by command of Her Majesty. London, 1860. (From J. O. McWilliam, M. D., Medical Inspector to Her Majesty's Customs.)

Chapters on Diseases of the Ovaries. Translated, by permission, from Kiwisch's Clinical Lectures on the Special Pathology and Treatment of the Diseases of Women: with Notes, and an Appendix on the Operation of Ovariotomy. By John Clay, M. R. C. S. Eng., &c. &c. London: John Churchill, 1860. (From the Author.)

Skin Diseases and their Remedies. By R. J. Jordan, M. D., Licentiate of the Royal College of Physicians, etc. etc. London: John Churchill, New Burlington Street, 1860. (From the Author.)

Further Researches on the Gray Substance of the Spinal Cord. By J. Lockhart Clarke, Esq., F. R. S. (From the Philosophical Transactions, Pt. I. 1859.) London, 1859. (From the Author.)

Advice to a Mother on the Management of her Offspring. By Pye Henry Chavasse, F. R. C. S. Eng. Fifth edition. London: John Churchill, 1860. (From the Author.)

Cours Théorique et Pratique de Braidisme ou Hypnotism nerveux, considéré dans ses rapports avec la psycologie, la physiologie, et la pathologie, et dans ses applications à la médecine, à la chirurgie, à la physiologie experimentale, à la médecine légale, et à l'éducation. Par le docteur J. P. Philips. Paris: J. B. Baillière et fils, 1860. (From the Publishers.)

On Obscure Diseases of the Brain, and Disorders of the Mind; their Incipient Symptoms, Pathology, Diagnosis, Treatment, and Prophylaxis. By Forbes Winslow, M. D., D. C. L. Oxon. Philadelphia: Blanchard & Lea, 1860. (From the Publishers.)

On the Theory and Practice of Midwifery. By Fleetwood Churchill, M. D., B. M., R. I. A., &c. &c. &c. With additions, by D. Francis Condie, M. D., F. C. P. P., &c. &c. With one hundred and ninety-four illustrations. A new American, from the fourth corrected and enlarged English edition. Philadelphia: Blanchard & Lea, 1860. (From the Publishers.)

The Principles and Practice of Modern Surgery. By Robert Druitt, L. R. C. P., &c. A new and revised American edition, from the eighth enlarged and improved London edition. With four hundred and thirty-two illustrations. Philadelphia: Blanchard & Lea, 1860. (From the Publishers.)

Electro-Physiology and Electro-Therapeutics; showing the best methods for the Medical Uses of Electricity. By Alfred C. Garratt, M. D., Fellow Mass. Med. Soc. Boston: Ticknor & Fields, 1860. (From the Author.)

Cuba for Invalids. By R. W. Gibbs, M. D., Columbia, S. C. New York: W. A. Townsend & Co., 1860. (From the Author.)

Memoranda Medica; or, Note-Book of Medical Principles. Being a Concise Syllabus of Etiology, Semeiology, General Pathology, Nosology, and General Therapeutics. With a Glossary for the use of Students. By Henry Hartshorne, A. M., M. D., Prof. of Theory and Practice of Medicine in Med. Depart. of Penn. Coll. Philadelphia: J. B. Lippincott & Co., 1860. (From the Author.)

Currents and Counter Currents in Medical Science. An Address delivered before the Massachusetts Medical Society at the Annual Meeting, May 30, 1860. By Oliver Wendell Holmes, M. D. Boston, 1860. (From the Author.)

A Valedictory Address delivered before the Medical Class of the University of Vermont, June 15, 1860. By Prof. R. Cresson Stiles, M. D. Burlington, 1860.

Application of the Button Suture to the Treatment of Varicose Dilatation of Veins. By N. Bozeman, M. D., of New Orleans. New Orleans, 1860. (From the Author.)

Review of Elwell's Medico-Legal Treatise on Malpractice and Medical Evidence. By Dr. Channing. (From the Author.)

Statistics of Insanity in the United States. By R. J. Dunglison, M. D. Philadelphia: J. B. Lippincott & Co. (From the Author.)

On the Impurities of Commercial Zinc, with special reference to the Residue Insoluble in Dilute Acids, to Sulphur, and to Arsenic. By C. W. Eliot and F. H. Storer. (From the Author.)

Proceedings of the Sixty-Eighth Annual Convention of the Connecticut Medical Society, held at Hartford, May 23 and 24, 1860. Hartford, 1860. (From P. M. Hastings, M. D., Secretary.)

Medical Communications of the Massachusetts Medical Society. Vol. IX. No. VI., 1860. Boston, 1860. (From Dr. J. Homans.)

Proceedings of the Academy of Natural Sciences of Philadelphia. June, July, August, 1860.

Report on Registration, presented to the Quarantine and Sanitary Convention at its Fourth Annual Meeting, held in the City of Boston, June 14, 1860. By E. M. Snow, M. D.

Seventh Annual Report to the General Assembly of Kentucky, relative to the Registry and Returns of Births, Marriages, and Deaths in the State of Kentucky, from January 1 to December 31, 1858.

Medical Catalogue and Announcement of the Saint Louis Medical College. Session 1859–60. St. Louis, 1860.

Annual Circular of the Trustees and Faculty of the Medical College of the State of South Carolina. Session 1859–60. Charleston, 1860.

Catalogue of the Medical College of Virginia. Session 1859–60. Announcement of Session 1860–61. Richmond, 1860.

Annual Announcement of the Medical Department of the University of Buffalo for the Session of 1860–61. Buffalo, 1860.

The following Journals have been received in exchange:—

Journal de Médecine de Bordeaux. Edited by M. Costes. May, June, July, August, 1860.

Journal de la Physiologie de l'Homme et des Animaux. Publié sous la direction de Docteur E. Brown-Séquard. April, 1860.

Gazette Médicale de Paris. June, July, August, 1860.

Journal de Médecine et de Chirurgie. H. Challions, M. D., Redacteur en chef. June, 1860.

Annales Médico-Psychologiques. Edited by Drs. Baillarger, Cerise, and Moreau (de Tours). July, 1860.

Moniteur des Sciences Médicales et Pharmaceutiques. Edited by M. H. de Castelnau. June, July, August, 1860.

Annales des Maladies Chroniques (Médecine et Chirurgie) et de l'Hydrologie Médicale. Publiés par le docteur Andreiux de Brionde. Juin, 1860.

The British and Foreign Medico-Chirurgical Review. July, 1860.

The Journal of Psychological Medicine and Mental Pathology. Edited by Forbes Winslow, M. D. July, 1860.

Edinburgh Medical Journal. July, August, 1860.

The Half-Yearly Abstract of the Medical Sciences. Edited by W. H. Ranking, M. D., and C. B. Radcliffe, M. D. January—June, 1860.

The Retrospect of Medicine. Edited by W. Braithwaite, M. D. January —June, 1860.

Edinburgh Veterinary Review, and Annals of Comparative Pathology. April, 1860.

British Medical Journal. Edited by Andrew Wynter, M. D. July, August, September, 1860.

The London Medical Review. July, August, 1860.

Ophthalmic Hospital Reports, and Journal of the Royal London Ophthalmic Hospital. Edited by J. F. Streatfeild. No. XI.

The British American Journal. Edited by Archibald Hall, M. D. June, July, August, 1860.

Southern Medical and Surgical Journal. Edited by Henry F. Campbell, M. D., and Robert Campbell, M. D. July, August, September, 1860.

The North American Medico-Chirurgical Review. Edited by S. D. Gross, M. D., T. G. Richardson, M. D., and S. W. Gross, M. D. July, Sept., 1860.

The Maryland and Virginia Medical Journal. Edited by J. B. McCaw, M. D., and W. C. Van Bibber, M. D. July, August, September, 1860.

The Medical Journal of North Carolina. Edited by Edward Warren, M. D. May, 1860.

New Orleans Medical News and Hospital Gazette. Edited by D. W. Brickell, M. D., and E. D. Fenner, M. D. July, August, September, 1860.

The Cincinnati Lancet and Observer. Edited by E. B. Stevens, M. D., J. A. Murphy, M. D., and G. E. C. Weber, M. D. July, August, September, 1860.

The New Orleans Medical and Surgical Journal. Edited by Bennet Dowler, M. D. July, September, 1860.

Charleston Medical Journal and Review. Edited by J. Dickson Bruns, M. D. July, September, 1860.

The American Journal of Insanity. Edited by the Medical Officers of the New York State Lunatic Asylum. July, 1860.

The Medical and Surgical Reporter. Edited by S. W. Butler, M. D., and R. J. Levis, M. D. July, August, September, 1860.

Louisville Monthly Medical News. Edited by S. M. Bemis, M. D., and J. W. Benson, M. D. June, July, August, 1860.

Louisville Medical Journal. Edited by Thos. W. Colescott, M. D. May, June, 1860.

Chicago Medical Journal. Edited by D. Brainard, M. D., and E. Ingals, M. D. July, August, September, 1860.

Nashville Journal of Medicine and Surgery. Edited by W. K. Bowling, M. D. July, August, September, 1860.

Saint Joseph Journal of Medicine and Surgery. Edited by G. C. Catlett, M. D., J. B. Snelson, M. D., and J. B. Scearce, M. D. July, September, 1860.

Cleveland Medical Gazette. Edited by Drs. Weber, Stevens, and Murphy. July, August, September, 1860.

American Medical Monthly, and New York Review. Edited by J. H. Douglas, M. D., and Austin Flint, Jr., M. D. July, August, September, 1860.

Ohio Medical and Surgical Journal. Edited by John Dawson, M. D., and J. W. Hamilton, M. D. July, 1860.

St. Louis Medical and Surgical Journal. Edited by M. L. Linton, M. D., and W. M. McPheeters, M. D. July, 1860.

Atlanta Medical and Surgical Journal. Edited by Jos. P. Logan, M. D., and W. F. Westmoreland, M. D. July, August, September, 1860.

The Cincinnati Medical and Surgical News. Edited by A. H. Baker, M. D. June, July, August, 1860.

Oglethorpe Medical and Surgical Journal. Edited by H. L. Byrd, M. D. May, July, 1860.

Georgia Medical and Surgical Encyclopædia. Edited by H. N. Hollifield, M. D., and T. W. Newsome, M. D. July, August, 1860.

The San Francisco Medical Press. Edited by E. S. Cooper, M. D. April, July, 1860.

The Savannah Journal of Medicine. Edited by Juriah Harriss, M. D. July, 1860.

The Pacific Medical and Surgical Journal. Edited by David Wooster, M. D. June, July, 1860.

The Chicago Medical Examiner. Edited by N. S. Davis, M. D., and E. A. Steele, M. D. July, 1860.

The Nashville Medical Record. Edited by Drs. D. F. Wright, T. L. Maddin, and J. H. Callender. July, 1860.

The Columbus Review of Medicine and Surgery. Edited by W. D. M'Millen, M. D. August, 1860.

The American Journal of Pharmacy. Published by authority of the Philadelphia College of Pharmacy. Edited by Wm. Procter, Jr. July, Sept., 1860.

The American Journal of Science and the Arts. Edited by Profs. B. Silliman, B. Silliman, Jr., and James D. Dana. July, September, 1860.

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THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER 1860.

Art. I.—*A Statistical Inquiry into the Causes, Symptoms, Pathology, and Treatment of Inversion of the Womb.* By Charles A. Lee, M. D.

Inversion of the womb is fortunately of such rare occurrence, that few physicians can be said to be practically acquainted with it. Many, in an extensive, life-long obstetric practice, have never met with a single instance. Others, have only now and then seen a case in consultation. In lying-in hospitals it is nearly, if not quite, unknown. The annals of the Dublin Lying-in Hospital and those of the London Maternity Charity together, do not show a single instance of the accident in a total of more than 140,000 labours. It is evident, then, that the affection can only be studied statistically, and not clinically. No one can ever expect to observe cases enough to become an authority on the subject; and hence, perhaps, it is, that there is so much obscurity and vagueness, as well as diversity, in the expressed opinions regarding its causes, pathology, and treatment. But however rare the accident may be, it is one which may happen to the most experienced obstetrician, as it did actually occur in the practice of the late Prof. Dewees. As it is one, moreover, so extremely hazardous to life, or, if the woman survive, entails such a vast amount of suffering, that it becomes the imperative duty of every physician to make himself fully acquainted with what is known regarding it, that he may be prepared to prevent, or if already existing, to pursue the most appropriate treatment. The present paper is not designed as a monograph, but rather as a collection of materials for such an essay at some future time. It originates in a desire to contribute something towards the elucidation of uterine inversion, and possibly to establish such principles and rules as may hereafter aid in the decision of questions connected therewith. In the attainment of this end, I shall present a synopsis, as brief as is deemed

consistent with my object, of such cases of inversion of the womb as are at present accessible to me, gathered from various sources, and authenticated by the names of the different reporters, together with such deductions as may, it is believed, be legitimately derived from them. With greater diligence the number of cases might have been considerably increased, but they are, perhaps, sufficiently numerous to answer our purpose. The results, in all probability, would not greatly vary, even if at all, by a wider and more comprehensive deduction. It may be, that in some instances, the same case may be reported more than once, in consequence of the references not being in all cases as exact as could be wished. Great care, however, has been taken to secure all possible accuracy.

Another object had in view, in the prosecution of this inquiry, has been to ascertain under what circumstances inversion generally occurs; the results of cases where reposition has not been effected; the effect of various modes of treatment, in chronic cases, where replacement has been impracticable, as by extirpation, ligature, excision; and, in short, all those facts connected with its causation, pathology, and treatment, which can be gathered from an analysis of a large number of examples. Considerable interest, moreover, has been excited of late in regard to the subject, from the fact that in several instances replacement has been effected several years after inversion occurred, and that too without endangering the life of the patient. There are other circumstances which seem to indicate that the time has arrived when the whole subject of *inversio uteri* needs to be resurveyed, and, if possible, more definite results arrived at than seem to have been hitherto attained, judging from the discordant views entertained by standard authorities on obstetric medicine.

Cases, moreover, occasionally occur, perhaps attended by a regular physician, where inversion of the womb at some future period is found to exist; and then the question naturally comes up, was the attendant physician guilty of inducing the accident, or did it occur from want of proper care, skill, or knowledge on his part? Did it actually happen at the time of delivery, or was there a partial inversion only, perhaps a mere dimpling of the fundus uteri, which afterwards gradually increased, until, on some sudden movement or muscular effort, it merged into complete inversion? In such a case, ought the practitioner to have discovered such partial inversion, if it existed at an early period? or what signs or symptoms would make it his imperative duty to institute a *vaginal* examination, in order to discover whether inversion existed or not? And, should it at length be found after days, or weeks, or months of suffering, that in all probability the patient had laboured under inversion ever since her confinement, would this furnish, in the present state of professional knowledge on the subject, just cause for blame, or possibly a prosecution for mal-practice? And again, suppose that a case of this kind should occur, where the symptoms from the very beginning, such as hemorrhage, nervous shock, great prostra-

tion, pain, &c., indicated something out of the usual course of things, and supposing they persisted for several weeks before any examination was made by the attending physician, and then complete inversion was discovered to exist; and suppose, what might very probably happen, that the husband of said patient should denounce the practitioner as guilty of ignorance, or great neglect, would an action against said husband for slander be entertained in any of our courts, and if so, what would be and ought to be enlightened medical testimony regarding the professional management of the case? All these questions may come up at any time in regard to these unfortunate cases, and the statistical survey and analysis we propose to make must, it is believed, throw more or less light upon them.

CASE 1. *Complete inversion*, projecting beyond the vulva, caused by *midwife pulling on the cord:* rapid delivery; great hemorrhage; convulsions; placenta had been separated after inversion by midwife; reposited without difficulty half an hour after by Dr. R. Lee, who states that this is the only case of complete inversion he ever saw, and he thinks "the accident is frequently if not invariably the consequence of pulling at the umbilical cord." Terminated fatally within a few minutes after reduction. (*Lectures on Midwifery*, by R. Lee, Am. ed. p. 410.)

CASE 2. *Complete inversion; fatal*—caused by pulling on the cord by midwife; whole womb and adherent placenta beyond the labia. Great hemorrhage; fatal in half an hour. (*Giffard*, quoted by Lee, p. 414.)

CASE 3. *Complete inversion*—from pulling on cord by midwife to deliver placenta; labour natural and easy; inversion was followed by convulsions, faintings, and great hemorrhage; fatal in half an hour. (*Chapman*, quoted by Lee, p. 414.)

CASE 4. *Complete inversion*—caused by an ignorant midwife pulling on the cord to deliver placenta; died immediately from hemorrhage. (*Smellie*, quoted by Lee, p. 415.)

CASE 5. *Complete inversion*—from pulling on cord by midwife, followed by speechlessness, imperceptible pulse, clammy sweats, deep and slow respiration, and death in a few minutes from hemorrhage. (*Smellie*, quoted by R. Lee, p. 415.)

CASE 6. *Complete inversion*—caused by pulling on cord; labour quick and natural; adherent placenta; traction made to extract and separate placenta, by which the womb was inverted, and caused to protrude beyond the vulva; great hemorrhage; death in one hour. (*Ramsbotham*, quoted by Lee, p. 416.)

CASE 7. *Complete inversion*—caused by traction on the cord by a midwife; labour easy; placenta adherent; attempts to extract it gave great pain; great hemorrhage, and sinking; reposited in an hour after by Prof. Meigs, after separating the placenta, the patient being pulseless, cold, suffering extremest distress, constant jactitation, and great thirst; recovered. (*Meigs' Females and their Diseases*, p. 232.)

CASE 8. *Complete inversion*—from pulling on cord by midwife; easy delivery; placenta adherent; one hour after accident uterus was discovered by Dr. Betton completely inverted and prolapsed, lying like a gum-elastic bottle between the thighs; patient pulseless; mind wandering, hemorrhage great; uterus was restored after the usual manner by firm pressure and indenting the fundus, in two or three minutes; resulted fatally in one hour after. (*Betton, in Am. Journ. Med. Sci*, vol. xix. 1836.)

CASE 9. *Complete inversion*—first child; midwife pulling at the cord; placenta adherent; uterus and placenta without the os externum; profuse hemorrhage, great exhaustion; placenta was separated and womb reposited; patient recovered with no unfavourable symptoms. (*Denman's Mid.*, p. 591.)

CASE 10. *Complete inversion; unreduced; fatal*—attended by midwife; inversion caused by pulling on the cord; placenta extracted with much force, and pain, followed by hemorrhage for 36 hours; at that time a physician was called, who found complete inversion of the womb, which resisted all attempts at reduction. Patient survived several months, was able to ride out, and attend to household affairs. Died at the end of a year. Autopsy disclosed the uterus entirely within the vagina, completely inverted, and but little exceeding the natural size. It was of a dark purple, veins much injected, marks of severe strangulation. (*N. B. Pickett, in Bost. Med. and Surg. Journ.*, vol. xxii. p. 95.)

CASE 11. *Complete inversion; unreduced*—natural slow labour, inversion from traction on cord very soon after delivery; placenta adherent; both uterus and placenta external to vulva. On the seventh day after, the womb is stated by Dr. Comstock to have been black, and covered with putrid coagula; fetor very offensive; serous discharge from tumour very profuse; no hemorrhage, though there was a loss of two or three pints of blood when the placenta was separated. A decoction of *Baptisia tinctoria* was applied to the tumour, and given internally with good effect. Fifty-four days after the accident, the uterus was contracted to the size of a large pear; colour white, substance firm; menstrual discharge continued. The patient was able to resume her former occupation, that of a dairy-maid, and enjoyed tolerable health. (*J. Comstock, Bost. Med. and Surg. Journ.*, vol. viii. p. 245.)

CASE 12. *Complete inversion*—great hemorrhage; not detected till two years afterwards, during which time she was greatly reduced by repeated attacks of hemorrhage. Dr. Meigs found, at that time, uterus of normal size, wholly within vagina, bled freely on pressure, not very sensible to touch; no attempts were made at reduction. Four years afterwards she became pregnant, uterus supposed by Dr. M. to have been spontaneously restored. (*Meigs, Females and their Diseases*, p. 237.)

CASE 13. *Complete inversion, except the neck*—delivery before the arrival of Dr. Levis, the physician; birth rapid; placenta was removed from vagina; great flooding; in two weeks much recovered; hemorrhage recurred often; five weeks after delivery the uterus was found inverted, lying within the vagina; no attempt was made at reduction; remained feeble for some time; afterwards became pregnant. Spontaneous reduction supposed by Prof. Meigs to have taken place as in the last case (*loc. cit.*, p. 239).

Two similar cases are related by Daillez (quoted by Crosse in his essay on *Inversion of the Womb*, and in *Dict. de Méd.*, vol. xxx. p. 458). In one case the reduction is said to have occurred at eight months, in the other eight years after the accident happened.

CASE 14. *Complete inversion*—natural labour; very sudden delivery by powerful uterine contraction, expelling the child with great force. Cord very short and twisted twice around the child's neck; placenta adherent; the placenta was separated, and attempts made at reduction without success, owing to contraction of cervix. Hemorrhage not profuse. Recovered. (*Denman's Mid.*, p. 592.)

CASE 15. *Complete inversion; reduced; recovery*—occurring, as sup-

posed, ten days after childbirth; took place after violent efforts to pass the contents of the rectum; attended with pain, faintness and flooding; protruded externally; two days after severe flooding; attempts at reduction failed at first, but succeeded after one hour and a half, by moderate and continued pressure with the hand; recovery perfect. Womb at the time of inversion is stated to have been of the size of a large pear. (*Dewees' Midwifery*, p. 484; *Case of Dr. Teallier, Journ. Univ.*, Nov. 1823.)

Case 16. *Partial inversion; unreduced; death*—first child; rapid delivery; under care of a midwife; hemorrhage and faintings followed; two hours after was found pulseless, cold, bathed in perspiration, breathing laborious and hurried; placenta adherent; within the vagina was a tumour resembling in shape and size the swelling at the bottom of a common black bottle, and over which the placenta was spread. Attempts at reduction caused great pain, and were consequently suspended. Death occurred in half an hour. Dr. Dewees, who reports the case, states that, in company with Dr. Rush, he dissected out the uterus, which was so flaccid as to turn inside out with as much facility as a soaked bladder. The fundus dipped into the body of the uterus about three inches. (*Dewees' Mid.*, p. 486.)

Case 17. *Partial inversion*—speedy delivery; placenta came away spontaneously, followed by inversion of womb, great pain, and flooding, faintings, vomitings, &c.; attended by midwife. Four days afterwards, was found by Dr. Dewees almost exhausted; pulse too frequent to be counted, faintings, difficult breathing; insatiable thirst, frequent vomiting, severe hemorrhage, &c.; fundus of uterus within the vagina; attempts at reduction failing, the uterus was designedly completely inverted, when the symptoms abated, as anxiety, faintings, flooding, pain, &c. Nine months afterwards, womb still unreduced, the patient was found "perfectly well, suffers no inconvenience from uterus, menstruated regularly, had more or less discharge of mucus, tinged with blood, for four months; for the last four months has had no discharge of any kind; uterus contracted to natural size." Ten years after the patient was enjoying a very fair proportion of health; the menstrual flow had ceased for five years. (*Dewees' Mid.*, p. 489.)

Case 18. *Partial inversion; spontaneous; reposited; recovery*—sudden delivery, Dr. Dewees in attendance; child large; placenta adherent, presented at os externum; fundus uteri was found inverted; restored in half a minute soon after it took place, the placenta being first separated; no unpleasant symptoms followed. (*Dewees' Mid.*, p. 490.)

Case 19. *Partial inversion; replaced*—placenta extracted without force, in fifteen minutes; considerable pain and hemorrhage, faintness, frequent pulse; great anxiety, paleness, and cold sweats; fundus uteri just within os externum. Three hours after, when seen by Dr. Dewees, the fundus was restored without difficulty; recovered. (*Dewees' Mid.*, p. 491.)

Case 20. *Partial inversion; unreduced*—first child, easy labour; caused by short umbilical cord twisted round neck; placenta adherent; bleeding not profuse; not much pain or exhaustion for fourteen hours; uterus within vagina; reduction not effected, though long continued efforts were made. Patient lived several years, though constantly troubled with pain, profuse hemorrhage, and leucorrhœa. (*R Lee, Lect. on Mid.*, p. 417.)

Case 21. *Inverted eight months before seen*—caused by midwife pulling on cord; reduction found impracticable; fatal in a few months from hemorrhage and constant discharge; also much pain, &c. (*Mauriceau*, 1684, quoted by R. Lee, *loc. cit.*, p. 414.)

CASE 22. *Complete inversion*—occurred two days before Mauriceau saw it; found uterus irreducible, ultimately proved fatal. (*Mauriceau*, quoted by Lee, *loc. cit.*, p. 414.)

CASE 23. *Complete inversion*—half an hour after delivery, the womb was found external between the thighs, "as large as a foot-ball;" great flooding; uterus reposited, but died in less than an hour from shock and hemorrhage. (*Lucas*, quoted by Lee, *loc. cit.*, p. 415.)

CASE 24. *Complete inversion; unreduced*—three weeks after uterus was the size of a goose's egg and regularly contracting; great suffering from flooding and its consequences; result not stated (*Ramsbotham, Midwifery*).

Two cases of polypus uteri, mistaken by Sir Charles Bell and others for inverted uterus. (See *Lee's Midwifery*, pp. 412–13.)

CASE 25. *Complete inversion*—midwife in attendance; little hemorrhage, but severe shock, from which the patient died one hour after the occurrence of the accident; uterus very flaccid; was restored half an hour after delivery without difficulty. (*Ramsbotham, Process of Parturition*, p. 318.)

CASE 26. *Complete inversion; unreduced; death*—cause not stated; died from hemorrhage soon after delivery; uterus lying in the vagina; the placenta was separated after the inversion, and the uterus crowded into the vagina. (*Ramsbotham, loc. cit.*, p. 319.)

CASE 27. *Complete inversion; unreduced; recovery*—case seen some weeks after delivery—uterus was found contracted to its normal size; patient was sinking from an exhausting fetid discharge. Attempts to re-invert the uterus proved unsuccessful; suffered greatly from irregular hemorrhage, with occasional severe pain in the lumbar region, afterwards a copious, glairy leucorrhœal discharge and violent bearing-down pains; uterus was ligated by Dr. Ramsbotham, with the object of removing it, but owing to the violent symptoms which followed the ligature was removed at the end of twenty-four hours; afterwards the menstrual discharge became regular; no leucorrhœa, the patient regained her flesh, colour, and appetite, could take long walks, had no bearing down, nor difficulty in passing water; could move and sit without inconvenience; bowels regular; health become better than it had been for many years; nothing solid passed from the vagina after the operation. (*Loc. cit.*, p. 319.)

CASE 28. *Complete inversion.*—Dr. White, of Manchester, who reports the case, represents the uterus as the size of a child's head, but retained within the vagina, and never expelled through the external organs; restored by compressing and then pushing up the fundus; cause of inversion not stated. Recovered. (Quoted by *Meigs, on Females*, p. 234.)

CASE 29. *Complete inversion; recovery*—primipara; patient 24 years of age; natural labour, but protracted; pains very frequent and of unusual force; after delivery there was great exhaustion; in twenty minutes patient seized with severe and continued pain, attended with great restlessness, sickness of stomach, and profuse hemorrhage. On examination by Dr. Bissell, who attended the case, the *fundus uteri* was found inverted, and forced down into the neck and os tincæ, with a portion of the placenta attached, while much the larger part lay in the vagina. The womb was folded inwardly upon itself, but not entirely inverted; flooding very severe. The placenta was detached, in doing which the uterus was entirely inverted. The reduction was readily and easily effected in the usual manner, the hand being retained within the womb until it contracted, when it was slowly withdrawn. (*Dr. P. Bissell, in Trans. Med. Soc. N. Y.*, 1859, p. 171.)

CASE 30. *Complete inversion*—primipara, age 26; natural labour;

strong continued pains for two hours before the head was expelled, when they ceased altogether. Strong traction was made to deliver the body; soon after pressure was made with one hand over the pubis, while traction on the cord was made with the other; pains and severe hemorrhage, with sinking; pulselessness, and great restlessness followed; skin cold, patient looking pale and ghastly, and rapidly sinking from combined effects of shock and hemorrhage. The placenta was not detached till the uterus was reposited, which was effected without difficulty. The uterus was excited to contract by the presence of the hand within its cavity, when the placenta was separated and withdrawn, which arrested the hemorrhage, and, in some degree, the sufferings of the patient. She sank, however, and died from exhaustion in about an hour. (*Bissell, loc. cit.*, p. 174.)

Case 31. *Complete inversion; unreduced; recovery*—eighth pregnancy, age 35; labour natural and easy; placenta adhered, which the midwife attempted to extract by traction on the cord, by which the womb was inverted. Thirty-six hours after Dr. Bissell, who was called in, found "a tumour nearly as large as a child's head, at full time, filling the vagina and resting on the perineum. It seems the after-birth was not removed till three-quarters of an hour after the birth of the child; after-pains, so-called, came on soon after, very severe and attended with copious flooding, great prostration, and a tendency to syncope. Thirty-six hours after delivery, the patient was found with cold clammy skin, feeble and very frequent pulse, face pale and ghastly, and uterus inverted; attempts to restore the uterus proved unsuccessful, owing "to the engorged and strangulated condition of the body of the womb, and the firm contraction of the neck and mouth of it." Five days after, the womb "was forced out five or six inches beyond the labia; was found of a dark purplish or livid colour, and possessing little sensibility." It was replaced, still inverted, in the vagina, and sustained by a T bandage. In two weeks she began to walk, and was soon able to be about house, and perform some of the duties of housekeeping. (*Bissell, loc. cit.*, p. 177.)

Case 32. *Complete inversion*—fourth labour, which was natural and rapid; pelvis very large; cord was tied immediately; there succeeded a long expulsory pain, which inverted the womb and forced it into and from the vagina. The organ, with the placenta adherent, was returned to its proper situation, and everything went on favourably. (*Denman's Midwifery*, p. 244, Eng. ed., quoted by *Churchill, on Females*, p. 372.)

Case 33. *Complete inversion; reposited*; *recovery*—primipara; labour natural; ten minutes after delivery, violent bearing-down pains came on, which forced the womb, inverted, with placenta adhering externally, from the vagina. The placenta was separated, and the uterus reposited in the usual manner—no hemorrhage; yet great pallor of face, cold sweat, rapid, irregular pulse, great prostration of strength, and threatened convulsions. Under the use of powerful stimulants the patient soon recovered and did well. (*Radford's Essay*, quoted by Churchill, p. 372.)

Case 34. *Inversion caused by polypus; unreduced; recovery*—patient aged 52; troubled with poor health and leucorrhœa for three years; great debility and emaciation; an attack of vomiting forced the tumour into the vagina, where it remained for three months; appearing externally at the end of that time, it was pushed up and remained in the vagina twelve months longer. On some exertion in walking it came down between the legs, drawing the inverted womb with it. No difficulty at any time in emptying bladder or rectum. A similar case is recorded by Dr. Browne

(*Dublin Med. Journ.*, vol. vi. p. 33); another by Dr. Higgins (*Ed. Month. Journ.*, July, 1849, p. 889); *case by Oldham*, quoted by *Ashwell on Diseases of Women*, p. 403; *case by Rigby, loc. cit.*, p. 404; *case by Leblanc, loc. cit.*, p. 405; *case by Velpeau, loc. cit.*, p. 405.

CASE 35. *Complete inversion; uterus removed by ligature*—primipara; labour natural; funis very short, placenta adherent, and much hemorrhage on its removal; retention of urine requiring use of catheter. Three months after Mr. Newnham, being called in, found constant mucous discharge from vagina, with frequent copious hemorrhages. On examination, the inverted uterus was found in the vagina; ligature applied April 13th, and tightened from time to time; uterus came away May 6th, and the patient did well. (*Newnham's Essay*, p. 31, quoted by *Churchill, on Females*, p. 386.)

CASE 36. *Complete inversion*—midwife in attendance; placenta adherent; caused by pulling on cord. Two hours after delivery, Dr. Radford found patient much exhausted, pallid, cold, &c.; placenta still adherent; no hemorrhage, nor convulsions; uterus reposited without difficulty; did well. (*Radford*, quoted by *Ashwell on Diseases Peculiar to Women*, p. 402.)

CASE 37. *Complete spontaneous inversion; reposited; recovery*—ten minutes after delivery, patient was seized with violent bearing-down pains, and on examination the uterus was found inverted, having, with the attached placenta, passed externally from the vagina; no hemorrhage, but very great exhaustion; placenta was peeled off, and the womb reinverted; patient did well. (*Mr. Mann*, quoted by Ashwell, *loc. cit.*, p. 402.)

CASE 38. *Complete inversion, and supposed spontaneous reinversion*—labour propitious; placenta was said to be naturally detached and expelled; no hemorrhage; attended by midwife. Forty-eight hours afterwards, Dr. Radford found a large tumour passing partly through the os externum. Unsuccessful attempts were made at different times to reduce it; the patient laboured under symptoms of peritonitis; had afterwards sanguineous, purulent and mucous discharges, with great debility, diarrhœa, aphthous affection of the mouth, &c. Uterus gradually lessened to size of a large pear; purulent discharges continued; at end of seven months no tumour could be detected, "the remains of the os uteri could be felt, but no regular aperture, the upper part of the vagina forming a complete cul-de-sac." She lived several years, and died of cholera. (*Radford*, quoted by Ashwell, p. 402.)

CASE 39. *Complete inversion*—placenta adherent; cause not stated; placenta first detached, and then the womb reposited with little difficulty; little hemorrhage; patient recovered without any interruption. (*Radford.*)

CASE 40. *Spontaneous partial inversion*—tedious labour from contracted pelvis; delivered by perforation; "uterus inverted spontaneously, the cord not having been touched; the fundus partially passed through the os uteri, forming a tumour, globular, large, hard, and resistent, with the placenta attached nearly in the centre." The uterus was easily reposited, the placenta then separated; no flooding, faintness, nor convulsion, and the patient had a good recovery. (*Radford*, quoted by Ashwell, *loc. cit.*, p. 403.)

CASE 41. *Spontaneous complete inversion*—attended by midwife; evening after delivery, uterine tumour felt above the pubis; much difficulty in passing urine; catheter used; very low and weak for two or three days. On examination at end of that time, a tumour was found low down in vagina, protruding towards os externum; uterus reduced in about fifteen minutes, after several unsuccessful attempts had been made. (*Radford, loc. cit.*, p. 403.)

CASE 42. *Complete spontaneous inversion; replaced; did well*—at-

tended by midwife; a few minutes after delivery patient complained of a sudden violent pain low down in the belly. The midwife examining, found the inverted uterus and placenta adherent between the thighs. Three-quarters of an hour after, found the patient greatly prostrated, with all the symptoms of fatal collapse. There had been no hemorrhage; stimulants were given, and attempts to restore the uterus made with the placenta adherent, but without success; the placenta was then separated, without hemorrhage; afterwards reduction was effected without difficulty, and the patient had a prosperous recovery. (*Ashwell on Dis. of Women*, p. 410.)

CASE 43. *Complete spontaneous inversion; reposited; recovery*—attended by midwife; very speedy labour, followed by a very hard, protracted, bearing-down pain, which forced the womb, with placenta adhering, external to vagina; no hemorrhage, but all the symptoms of great exhaustion of vital powers; a rapid pulse, cold surface, &c.; attempts to reposit the uterus, with the adhering placenta, being unsuccessful, the placenta was separated, little blood lost, and reduction then effected with a good deal of difficulty. Syncope and laboured breathing continued for some time. In three weeks she resumed her usual avocations. (*Ashwell, loc. cit.*, p. 411.)

CASE 44. *Complete inversion; spontaneous; unreduced; death; fatal from hemorrhage.*—A mother of several children had a rapid labour, of a living child. In a few minutes, without traction on the cord, hard and sudden pain forced the inverted uterus into the vagina; placenta adherent; the surgeon in attendance tried to restore it before removing placenta, but this did not succeed. He now peeled off the after-birth, which was followed by such copious hemorrhage, as to prove immediately fatal. (*Dr. Lever*, quoted by *Ashwell, loc. cit.*, p. 411.)

CASE 45. *Complete inversion; partial recovery*—caused by midwife pulling on cord; patient not much exhausted. Dr. Dewees was sent for soon after the accident; uterus was returned by gently and firmly pressing the fundus uteri upwards, in the direction of the vagina. But the womb was not re-inverted, although two hours were spent in attempting reduction. The patient continued to labour under a bloody discharge, and six months after was still pale and sickly in look. (*Dewees' Midwifery*, p. 478.)

CASE 46. *Partial inversion—cause not stated.* Dr. Dewees failed in attempts to re-invert the uterus, and therefore completed the inversion, which afforded much relief. But the patient died thirty-six hours after. The patient was nearly exhausted by hemorrhage and suffering, and almost pulseless, before the reduction was attempted. (*Dewees' Midwifery*, p. 478.)

CASE 47. *Complete inversion; spontaneous*—twin birth, large pelvis, natural labour, complete in one hour and a half; placenta expelled with very trifling manual assistance; expulsion followed by small quantity of blood; remained comfortably in bed eight days, and was quite well. On the evening of the eighth day, dressed and got up, when she experienced slight uterine hemorrhage. Two days after, while sitting up it returned, and she lost, as was supposed, a quart of blood. A sanguineous serous discharge continued, and she presented the ordinary constitutional symptoms of a large loss of blood; a greenish vaginal discharge succeeded for two or three days, when hemorrhage returned, with symptoms of great exhaustion. Ergot was given, and cold applications made over pubis, but *no vaginal examination*. On the 21st day after delivery, hemorrhage still more alarming recurred, attended with syncope, and on examining, a tumour—the inverted uterus—was found rather larger than a hen's egg, at the upper part of the vagina. Attempts at reduction were made, without success. The

uterine hemorrhage ceased, and she gradually recovered her usual healthy appearance. Fourteen months after, she was pronounced a "very robust, active woman, and had been free from any vaginal discharge for eleven months. (*W. J. Square, in Provincial Med. and Surg. Journ.*, vol. i.)

Remarks.—This case, though called spontaneous, is doubtless to be ranked with those where inversion was begun by traction on the cord; for eight days, during which she remained quietly in bed, she was comparatively comfortable. On getting up, the inversion increased, with hemorrhage, &c., till completed. Mr. S., who was called in on the eleventh day after confinement, made no vaginal examination, though hemorrhage was severe until the 21st day, when the accident was discovered. There can be no reasonable doubt, however, but that partial inversion existed from the time of delivery. The case is also remarkable for the continuous good health the patient enjoyed for more than a year, notwithstanding the inversion.

CASE 48. *Complete inversion*—from midwife pulling on cord, placenta adherent; tumour the size of a child's head, soon became inflamed and gangrenous; ligature was applied in a few days, followed by convulsions and painful draggings in the loins; tumour separated on the 17th day; patient recovered. (*Journ. de Méd.*, Aug. 1786, p. 201.)

CASE 49. *Complete inversion; reposited; recovery*—primipara; labour tedious; delivered by the vectis; considerable hemorrhage; great exhaustion. Three weeks after Dr. Smart, who was called in, found the whole vagina filled with a soft, compressible tumour; no neck or os uteri to be felt; blood was oozing from the surface of the tumour; the attending physician stated it had been much harder, and felt like the head of a child, for which he at first mistook it. Reduced in three days, by gradual pressure, made with an instrument in the form of a common iron mortar pestle, and secured in place by a T bandage. The patient did well. (*B. Smart, in Am. Journ. Med. Sci.*, vol. xvi. p. 86.)

CASE 50. *Complete spontaneous inversion*—very rapid labour; in five minutes after the child was born, the placenta was thrown off, the cord not being touched, except to divide it. On examination, the uterus was found inverted, with the placenta attached. The placenta was removed, and the fundus uteri then passed up into place, without the slightest difficulty; very slight hemorrhage, but great exhaustion, so that for one hour the patient seemed to be dying. The patient, however, soon rallied, and had a favourable recovery. (*D. H. Storer, N. Eng. Quarterly Journ. Med. and Surg.*, July, 1842, also *Am. Journ. Med. Sci.* for July, 1842.)

CASE 51. *Complete inversion; not replaced; death*—midwife in attendance, favourable labour. In detaching and delivering placenta, the uterus was inverted. Dr. Sutton arrived just after the accident occurred, and found the patient ghastly, pupils dilated, pulse very weak, &c., but there had been but little hemorrhage. The patient did not complain much; attempts to re-invert the uterus did not succeed, and she died in about three hours. (*W. L. Sutton, in Am. Journ. Med. Sci.*, vol. iv. N. S.)

CASE 52. *Complete inversion*—primipara; uterus with placenta attached, expelled with the child; no hemorrhage, great sinking, lips and countenance livid, pulse very feeble; separated the placenta and restored the uterus. In this case the membranes gave way several hours before the child was born, presentation natural; body not expelled with severe pains that expelled the head; cord rather short; uterus followed the body with the same pains. Had a slow, but favourable recovery. (*W. L. Sutton, loc. cit.*, p. 84.)

CASE 53. *Complete inversion*—labour easy and rapid; fifth child; pla-

centa adherent; traction on cord brought down placenta, and uterus inverted. The placenta was peeled off, and reduction of uterus attempted, but without success; the uterus was crowded up into the vagina, but next day it came down beyond the os externum. Mental disturbance succeeded, and on the fourth day, the patient became maniacal. Ten days after the accident occurred, the uterus was reposited after an hour's gentle, but forcible compression, the patient having previously been fully brought under the influence of tart. antimony. The recovery was rapid and complete. (*J. P. Gazzam, in Am. Journ. Med. Sci.*, April, 1844, p. 357.)

CASE 54. *Congenital inversion; unreduced.*—This case was reported to the French Academy of Medicine by Dr. Williame, of Metz. The uterus was inverted in the patient, a virgin, so that the body of the uterus was below, and formed a tumour on the right side of the vagina, while its neck was above, and out of the reach of the finger. The patient menstruated regularly, the menstrual blood being always mixed with a copious leucorrhœal discharge. (*Dublin Med. Press*, Nov. 8, 1843.)

CASE 55. *Complete spontaneous inversion*—primipara; labour natural; about seventeen minutes after birth of child, a strong expulsatory effort was made; the uterus felt strongly contracted above pubis. The uterus inverted with placenta adherent, was expelled, and found lying between the thighs of the mother; the portion of the uterine surface, from which the placenta was detached, was pouring out blood in great violence. The patient lay in a state of syncope, pulse imperceptible, clammy perspiration, and vomiting every few minutes. The placenta was separated, and the uterus reposited without difficulty; recovery complete, though slow at first. (*S. Edwards, Lancet*, April 5, 1845, *Am. Journ. Med. Sci.*, July, 1845.)

CASE 56. *Partial inversion of the uterus occurring at the fourth month of utero-gestation.*—Mrs. S. was seized with flooding the 15th of January. On the 16th, abortion occurred, with much hemorrhage, after being pregnant four months. On the 18th, she got up, but the flooding returned with so much violence, that she went to bed, which she was obliged to keep. On the morning of the 25th, during vomiting, she was sensible of something falling down within her, and from that time to the 25th, at half past 10 o'clock P. M. that sensation continued, along with bearing-down pain, flooding, much general uneasiness, and extreme prostration. In the course of twenty minutes, on the 26th, the organ was reposited by the usual mode of procedure; recovery went on slowly. The eighth pregnancy; had been attended by midwives in every labour. (*Dr. Spae, Northern Journ. Med.* July, 1845, *Am. Journ. Med. Sci.*, Oct. 1845, p. 514.)

CASE 57. *Complete spontaneous inversion*—age 35, mother of several children; eighth month of pregnancy; large pelvis; feeble pains at first, "when suddenly a violent throe thrust fœtus, placenta, and body of the uterus inverted, beyond the labia externa;" fœtus small and putrid, umbilical cord but eight inches long. "The uterus was as flaccid as a wet bladder. The fundus was carried up to its place with ease, but no contraction of any part of the organ took place during the operation. *On attempting to withdraw the hand, the fundus followed it.* A strong infusion of ergot was given every ten minutes, while the fundus was grasped with the thumb and finger of the left hand, the right being still in the cavity. In fifteen minutes contractions came on, forcing the head into the vagina. There was no hemorrhage, nor pain, syncope, or any of the usual attendants on this accident. (*E. Fisher, Illinois, Med. and Surg. Journ.*, Dec. 1845.)

CASE 58. *Complete inversion of the womb, with rupture of the posterior walls of the vagina, and passage of the fœtus through the rupture*—age 27, delivered at full period, and spontaneously, but with much straining; after-birth was also discharged with much pain, "after this was delivered, acute pain was felt in the vagina, on applying her hand to the part, a smooth, round body was felt in the vulva. Dr. Snackenbergh being sent for, found the inverted uterus prolapsed through a rent in the posterior walls of the vagina; with his right hand well oiled, he endeavoured first to make the segment of the uterus re-enter through the fissure in the vagina, and afterwards to push it upwards with the hand applied flat on the wound. He supported for some time the perineum, and pressed it upwards with the base of the uterus, which rested on it. Gradually the uterus rose up and assumed its natural position. The lochia came on, and the patient got entirely well. (*Gaz. Méd. de Paris*, Oct. 5, 1834, *Am. Journ. Med. Sci.*, vol. xxvi. N. S., p. 230.)

CASE 59. *Complete inversion and abstraction of the uterus*—Mrs. C. delivered, in natural and easy labour, of a living child, without a physician; cord was tied, but the placenta retained; a physician was sent for, and an ignorant clerk in a drug store went, and finding the placenta adherent, made strong traction on the cord, and inverted the uterus, placenta still adhering; this was separated, and then mistaking the uterus for a part of the placenta, a tumour, or something else, proceeded to drag it from its attachments, and separate it from the body, during which operation she died. Three-quarters of an hour were spent in accomplishing the task. (*J. H. Griscom, in N. Y. Journ. Med. and Surg.*, 1839.)

CASE 60. *Partial inversion*—age 34, mother of four children, natural labour; placenta adherent; as the after-birth did not immediately come away, the midwife in attendance pulled strongly on the cord, while another woman made pressure with her hands over the fundus uteri, the patient being at the same time urged to bear down; the placenta, with the inverted uterus, was drawn down to the os externum, accompanied with severe hemorrhage, the uterine tumour being nearly of the size of the fœtal head, the patient expiring in a few minutes. Autopsy showed that the uterus had not contracted. (*John Christie in Ed. Month. Journ. Med. Sci.*, 1846.)

CASE 61. *Inversion produced by a polypus*—age 46, mother of five children, laboured under severe leucorrhœa; examination disclosed a polypoid tumour, projecting from os externum; this was excised, two years after the first appearance of the disease. One year after, a pyriform tumour was discovered in the vagina, with its base inferior, of a firm, resisting texture, and quite insensible to the touch. The uterus was drawn down by a uvula forceps, and the diagnosis made clear. The organ was left to itself; result not stated. (*M. Fleury, in La Presse Médicale*, No. lviii. 1837, and *Bell's Eclect. Journ. Med.*, vol. ii. p. 431.)

CASE 62. *Inverted uterus removed by ligature; death*—Mrs. S., aged 46, delivered at full time of a healthy child, labour lingering, placenta adherent, and removed by midwife by violent traction on cord. Hemorrhage succeeded, which was protracted for the space of nine months; patient pale, anæmic, weak, with a copious and very mucous discharge, during the intervals of the floodings. At the end of nine months, a tumour was found in the vagina two and a half inches in length, and an inch and a quarter broad, tapering upwards—firm and incompressible in texture, smooth and regular on its surface, devoid of sensibility when pressed or irritated, the os uteri embracing its upper part. The uterus was ligated and tightened every other

day; on the fifteenth day, the uterus came away; peritoneal inflammation succeeded, and the patient died on the sixth day after the operation. (*Symonds, Med.-Chir. Review*, vol. xiv. p. 251.)

CASE 63. *Partial inversion*—delivery by forceps; placenta adherent; traction drew it down, together with the *fundus uteri* into the vagina, followed by flooding; the uterus, with placenta adhering, was immediately returned; the adherent portion separated, and the patient did well. (*Rev. of Ingleby on Obst. Med. in Med.-Chir. Rev.*, vol. xxvi. p. 99.)

CASE 64. *Complete inversion from pulling on cord; reposited; recovery*—attended by midwife; placenta adherent. The whole uterus hung between the thighs; the fundus ulcerated, and discharging offensive matter, resembled, some years after the accident, a malignant tumour, the size of a cocoa-nut. The uterus was re-inverted by gradual and gentle pressure, and its prolapse afterwards prevented by a pessary, "which was secured round the hips by means of tapes." The health of the patient was afterwards comfortable; could walk any distance without inconvenience. (*Med.-Chir. Rev.*, vol. xxvi. p. 100.)

CASE 65. *Complete inversion, unsuspected during life.*—J. Lisfranc relates the case of an old woman, who died of bronchitis in the Salpêtrière, and, upon *post-mortem* examination, the uterus was found completely inverted. Convalescent from a former attack, she had been under observation a considerable time prior to the fatal seizure of bronchitis, and was observed to be very active in her habits, regular in most of her functions, and manifesting no one symptom whatever of uterine derangement; appetite and digestion good; no pain in pelvis, and no vaginal discharge. Lisfranc does not believe in the authenticity of those cases, in which the uterus is said to have been reduced spontaneously, at the expiration of days, weeks, or months after the inversion has occurred. (*Clinique Chir. de l'Hôpital de la Pitie*, 1843.)

CASE 66. *Partial inversion*—age 31, primipara; tedious labour, requiring the use of instruments; placenta adherent, and removed with difficulty, with probable traction on cord. Whenever she assumed the upright position, she had a very unpleasant, dragging sensation in the uterine region. Three weeks after labour, she had an attack of hemorrhage from the vagina; soon after, a tumour appeared below the vulva, which proved to be the uterus, partially inverted and prolapsed. The uterus was replaced in the vagina, and Sir Philip Crampton attempted to re-invert it, but without success; great pain, irritability of stomach, and syncope succeeded, and one week after, hemorrhage, and she finally sank from exhaustion, nine months after confinement, the prominent symptoms being hemorrhages, irritability of stomach, and mucous discharges.

Dr. McClintock, who reports this and the last case, in the *Dublin Journ. Med. Sci.*, 1845, remarks as follows: "In both of these cases, it will be perceived that there was some manual interference by the attendant in removing the placenta, by which, doubtless, the inversion was produced. Indeed, I cannot help expressing my conviction, that whenever the uterus is inverted at the time of parturition, it is to be attributed to some mismanagement of the delivery of the after-birth, in confirmation of which I would adduce the accumulated experience of Drs. Clarke, Labatt, Collins, Kennedy, and Johnson, in this hospital, which does not furnish a single instance of the occurrence of this accident, though the number of women delivered during their united masterships amounts to upwards of 71,000." (*Braithwaite*, 1845, vol. xi. p. 275.)

CASE 67. *Inverted uterus extirpated by ligature*—Mrs. A., natural labour, placenta adherent; midwife inverted the uterus, by pulling on the cord, to extract it; tumour lodged in the vagina; no hemorrhage after a few days, for several months, nor menstruation. Dr. Gooch, who then for the first time examined it, found the tumour, the size of a small apple, smooth surface, narrow stalk, encircled by the orifice of the uterus, like a polypus, but sensible to the touch; her health seemed to be sustaining no injury from it. Two years after, she was seen again, when it appeared that she had become subject to frequent and profuse hemorrhages, which had broken down her health; attempts at reduction having failed, the uterus was ligated, and the ligature tightened every other day. On the fourteenth day, it came away, proving to be the fundus of the uterus, for it was a hollow cup, the size of a small apple. The patient entirely recovered. (*Gooch, Med.-Chir. Rev.*, vol. ix. p. 252.)

CASE 68. *Partial spontaneous inversion*—age 25, primipara. Ergot was given during labour, and the funis presenting in advance of the head; the forceps were applied; child stillborn; no traction on cord, the placenta being naturally expelled in a few minutes; uterus contracted well; funis of natural length; an hour after, some hemorrhage took place, but the uterus had contracted, so stated, and she went on satisfactorily for three days; at the end of that time, a cathartic was given, attended with much pain and straining, during which the patient felt as if something had come down. Vaginal examination now showed that inversion had taken place, the fundus having descended to within an inch or two of the labia, but no hemorrhage had taken place since the day of delivery. Attempts to reduce it proved unsuccessful; rest and astringent injections used; sanguineous and serous discharges, however, soon came on, which caused great exhaustion. Nine months after delivery, another attempt at reduction caused so much pain, that it had to be discontinued. Severe hemorrhage continued, especially at the catamenial periods, which was attended with constipation, headaches, palpitations, frequent pulse, slow hectic fever, irritable stomach, &c. She survived a year and a half, and died from exhaustion. *Post-mortem* examination showed the uterus to be in a state of partial inversion; length of tumour three-quarters of an inch, transverse diameter one inch and a half, greatest circumference four inches and a quarter. (*J. G. Forbes, Med.-Chir. Trans.*, vol. xxxv. p. 127.)

CASE 69. *Inversion successfully reduced on the sixteenth day after the accident*—age 24, second accouchement; cause not apparent. On sixteenth day, Dr. M. found patient in bed, in a comfortable condition, free from pain, or other special inconvenience; uterus completely inverted, and occupying the entire vagina; reduced by placing patient on her back, under influence of equal parts of ether and chloroform. The body of uterus was grasped with the right hand, and pressed steadily upwards, in a line corresponding with the axis of the pelvis, while counter-pressure was made with the left, over the abdomen. The reduction was speedily effected, with but little pain to the patient, and the loss of but little blood. The patient felt comfortable, and did well. (*Mendenhall, Am. Journ. Med. Sci.*, Oct. 1859.)

CASE 70. *Inverted uterus replaced after a lapse of nearly twelve months*—age 25, second labour; rapid delivery; living child; placenta retained three and a half hours, during which there was great hemorrhage; patient became insensible, and hence unable to say whether placenta came away spontaneously, or was removed by hand; great weakness, diarrhœa, and pain in abdomen followed, which confined her to bed;

at the end of five weeks phlegmasia dolens set in, which was treated by leeches, &c. Three months after confinement, menstruation reappeared, discharge profuse, and mixed with coagula; flow lasted longer than natural, and returned more frequently, followed by yellowish, leucorrhœal discharge; reduced very low by oft-returning hemorrhages; skin sallow, pulse very feeble and frequent, &c. Examination disclosed partial inversion, a tumour of oval form, hanging down about two inches and a half through the os uteri, which closely surrounded, but did not constrict it. The uterus was reduced in the course of three days, by the use of an air-pessary, made of vulcanized India rubber, four inches long, by five in circumference at its middle, rendered comparatively inelastic at its lower half, by the introduction of several layers of linen between the folds of the India rubber; a belt fastened around the waist, the anterior half of steel, served as a fixed point for a metallic wire. attached to a small wooden dish or cup, bearing the pessary. The air was forced into the pessary by a syringe through an elastic tube connected with it. By this means continued pressure was exercised against the fundus of the inverted uterus, without painful distension of the vagina, until it was gradually reduced. (*Charles West, Med. Times and Gaz.*, Oct. 29, 1859; *Am. Journ. Med. Sci.*, Jan. 1860.)

Case 71. *Inverted uterus removed by ligature*—age 22, second child; placenta adherent, extracted with great pain and excessive hemorrhage; flowed more or less all the time for three months; at this time ceased nursing child, hemorrhage became incessant; one year after confinement appeared bloodless, anasarcous, and very weak; attempts to reduce the uterus failed, though ether was given; tumour ligated by a cord, so as to be daily tightened by a screw, came away on the eleventh day, recovery perfect. (*C. G. Putnam, Am. Journ. Med. Sci.*, Oct. 1856.)

Case 72. *Inverted uterus removed by ligature*—age 25; first confinement, had twins, and was much enfeebled by nursing; at second confinement she was not aware of any extraordinary pain, hemorrhage, or faintness, though she never "felt quite right" about the pelvis. During first week sat up in bed, and moved about the bed more freely than usual. On eighth day, having got out of bed to evacuate the bowels, she felt something protruding from the external organs, considerably larger than an orange. She suffered much distress till it was replaced in the vagina. It appeared no more externally, though she was occasionally obliged to press it upward, in order to relieve a painful sense of pressure. Local uneasiness gradually diminished; able to attend to her household duties for eight months, though flowing almost constantly, when she had to remain in bed. Palpitation, throbbing in head, dyspnœa on motion, urgent thirst, pale, very feeble pulse, white tongue, &c.; tumour two inches in length, two inches in breadth, and an inch and a half thick, high up in vagina. Ligature applied, and tightened as she could bear it. On the ninth day after, died from exhaustion, without peritoneal inflammation tumour detached, and cicatrization effected. (*C. G. Putnam, loc. cit.*, p. 572.)

Case 73. *Inverted uterus successfully removed by ligature*—age 23; second confinement; unusual pain and hemorrhage during the delivery of the placenta; flowed for a year, almost continually. Exhaustion extreme, attempt to re-invert uterus failed. Ligature applied to tumour, which came away at the end of two weeks; recovered from the symptoms which attended. In the above three cases the writer thinks it probable that inversion took place at the time of delivery. (*C. G. Putnam, loc. cit.*, p. 573.)

CASE 74. *Complete inversion*—age 24; second confinement; breech presentation; child small, labour easy, placenta adherent; traction on the cord, and pressure over the pubis, brought the inverted uterus into the vagina; attempts to reduce the womb, with placenta adherent, failed at first, but in the course of an hour succeeded; but the patient died in twenty minutes from hemorrhage, placenta still adherent. (*Burrowes, Trans. Prov. Med. and Surg. Assoc.*, Aug. 5, 1846; *Am. Journ. Med. Sci.*, Jan. 1846, p. 217.)

CASE 75. *Complete inversion*—labour not exhausting; placenta adherent; strong pressure made over pubis; tight binder as soon as child was born; uterus was readily replaced, with placenta still adherent, which came away on withdrawing the hand. Patient recovered as well as she usually had done, and no unpleasant symptoms followed. (*Burrows, loc. cit.*)

CASE 76. *Complete inversion*—second child; labour eight hours' duration; child born naturally, placenta expelled in half an hour after; immediately the patient complained of great pain in back and groins, sense of fulness in vagina, followed by copious hemorrhage and fainting fits, rapidly succeeding each other; rapid respiration, gasping, deep sighs; small, thready pulse, 125 in a minute; palpitation, great prostration and collapse; no tumour felt over pubis; uterus easily reposited in usual manner; patient slowly but perfectly recovered; no undue force, it is stated, was applied to the cord, but there is every reason to believe that this was the exciting cause. The writer states that this was the first case in 3500 delivered in the hospital. (*T. R. Mitchell, Dub. Med. Press*, Sept. 9, 1846; *Am. Journ. Med. Sci.*, Jan. 1847.)

CASE 77. *Inverted uterus successfully extirpated by excision; recovery*—coloured woman; had laboured under inversion for twenty years; how it happened was unknown; she had always been greatly annoyed by it, but by means of a T bandage had been able to pursue her ordinary avocations. Latterly it had increased in size so much as to render this impracticable; any attempt at replacement caused excruciating pain. The tumour was of the size of a fœtal head at full term, pyriform in shape, and hung between the thighs; whole surface covered with a rough, thickened mucous membrane, abraded and ulcerated in many points, a good deal inflamed and disposed to bleed on handling. A strong ligature was applied to its neck, when it was cut through below the ligature by a probe-pointed bistoury with very little pain. The patient rapidly recovered and did well. (*E. Geddings, Am. Journ. Med. Sci.*, Oct. 1854.)

CASE 78. *Complete inversion, restored; recovery*—age 19, primipara; labour easy, six hours' duration. The accoucheur had kept his hand over the uterus above pubis to promote contraction, for fifteen minutes after the child was born, when, finding some flooding, he increased his pressure, when the uterus was felt suddenly to yield and recede from the grasp, and was expelled from the vagina with the placenta adherent. The woman became pallid, anxious, complained of considerable pain, and a sensation of sinking; pulse almost imperceptible; no hemorrhage. The placenta was detached and the uterus reposited in seven minutes, in the usual manner, making counter-pressure over the pubis. Patient made a perfect recovery, and did well. (*G. Johnston, Dublin Quart. Journ. Med. Sci.*, Feb. 1854; *Am. Journ. Med. Sci.*, Oct. 1854.)

CASE 79. *Complete inversion*—delivery at full term, after an ordinary labour; placenta came away without any difficulty or pulling at the cord. Forty-eight hours after this she rose from her bed to evacuate her bladder, when complete inversion took place. Thirty-one hours after, was found

pale, pulse small, rapid, look anxious, &c. The uterus had been pushed up into the pelvis and left. A cup-like depression could be felt above the pubis; under the influence of chloroform the womb was reposited after long and persevering efforts. (*E. P. Bennett, Am. Journ. Med. Sci.*, Apr. 1857.)

Case 80. *Complete inversion of twelve years' duration, reduced; recovery*—primipara; delivered at the age of 18; inversion occurred, but was not suspected. When at length an examination was made, a tumour was found in the vagina. Flooding continued to a greater or less extent for nearly twelve years, never a single day free from a sanguineous discharge; all attempts to reduce the uterus failed. Dr. Tyler Smith, on taking charge of the patient, found anæmia existing in the highest degree. She was subject to epileptiform convulsions and frequent faintings, passed little urine; often twenty-four hours without micturition. Dr. S. determined to attempt its reduction by continuous pressure, with the intention of dilating or developing the os and cervix uteri. With this object the hand was passed into the vagina night and morning, and the uterus squeezed and moulded for about ten minutes at a time. Chloroform was not used. In the intervals the vagina was distended, and firm pressure excited upwards by a large air-pessary. These means gradually dilated the os uteri to such an extent as to allow of the partial return of the uterus, and on the eighth day from the commencement, complete reinversion took place. Recovery was rapid and perfect. (*Tyler Smith, Am. Journ. Med. Sci.*, July, 1858, p. 270.)

Case 81. *Complete inversion*—Mrs. H., age 25; primipara; funis twisted twice around child's neck; natural labour, sixteen hours' duration; very strong, forcing pains; half an hour after child was born, a strong pain forced the inverted uterus and adhering placenta without the vagina; patient became pulseless, cold, prostrated, and in a state of collapse; breathing laborious. The uterus had been exposed three-quarters of an hour, and was much contracted. The placenta was peeled off, no hemorrhage, and uterus reposited with little difficulty, and in the usual manner. The hand was retained within the uterus till it contracted and then withdrawn; some peritonitis followed, which was successfully treated by leeches, fomentations, &c., and the patient was soon restored to her usual health. (*Borham, Am. Journ. Med. Sci.*, April, 1856, p. 533.)

Case 82. *Complete inversion of the uterus*—age 34; second confinement; labour natural, lasted six hours; child large and living; no hemorrhage; funis very short and twisted twice round the neck; it was divided, as it was too tight to relieve it, or apply ligatures; in twenty minutes a strong expulsive effort brought down the inverted uterus with the placenta adhering; considerable hemorrhage followed; patient became weak, faint and exhausted; placenta was detached and the uterus reinverted without difficulty. Patient had a good recovery. (*Leonard, Ibid.*, p. 534.)

Case 83. *Partial inversion from traction on the cord*—seventh confinement; labour natural; midwife pulled strongly on the cord, when sudden symptoms of collapse occurred; violent hemorrhage, pallor, delirium, syncope, &c.; portion of placenta unremoved. The uterus was replaced with the placenta adhering; all the symptoms disappeared, and the patient had a favourable recovery. (*Ellis, Med. Times*, Feb. 16, 1856.)

Case 84. *Inversion following abortion at the fifth month of pregnancy*—age 23, second confinement; strong labour pains; child stillborn; cord of unusual length, and not wound round the neck; very severe hemorrhage came on immediately, pulse became imperceptible, face death-like, features

pinched, breathing laborious, body cold and bathed in perspiration; uterus was found between the thighs, inverted, flaccid, with placenta adhering to the fundus; the uterus was reposited with placenta adhering; about one-half was detached and removed, the hand remaining *in utero* till contraction took place; the uterus firmly contracted on the remaining portion of the placenta, and prevented its removal; about twenty-four hours after it was removed in a putrid state, with slight hemorrhage. Patient had a slow but perfect recovery. (*John A. Brady, N. York Med. Times*, Feb. 1856.)

CASE 85. *Inversion successfully reduced at the end of six months*—primipara, age 19; a German midwife in attendance; child weighed 10½ lbs.; the after-birth, she stated, soon came away, accompanied by a large tumour, which she supposed to be a mole or false conception. Great hemorrhage followed, producing protracted syncope. Five days afterwards, whilst making an effort to evacuate the bowels, the tumour descended through the os externum, and became suspended between the patient's thighs. One week after the inversion occurred, Dr. White found the uterus inverted, and as large as at the fourth month of pregnancy; inflamed and tender, as also the external organs. By powerful compression of the womb, it was finally relieved in a measure of its engorgement, and successfully reposited, but with considerable loss of blood. Patient died on the third day after from exhaustion. (*J. P. White, Am. Journ. Med. Sci.*, July, 1853.)

CASE 86. *Complete inversion; restored after six months' duration*—age 30, second confinement; natural labour; large male living child; placenta adherent, but removed at end of half an hour, followed by copious flooding, severe pain, and faintings; great prostration; continued very weak for three weeks, when she took an aloetic cathartic, which occasioned violent efforts at stool, with pains resembling those of labour, followed by profuse hemorrhage, and a large pear-shaped tumour made its appearance through the os externum; the neck being at the vulva and the larger extremity between her thighs. The tumour was carried high up in the vagina; for three months occasional severe hemorrhages, and constant discharge of muco-sanguinolent matter. Patient mostly confined to bed, with pulse 130, and all the symptoms of great exhaustion; uterus about the normal size, six months after delivery. The uterus was reinverted, the patient under the influence of chloroform, with the aid of a large rectum bougie pressed against the fundus, continuous, gentle pressure being made upon the external extremity of the bougie with the left hand, while the right compressed the uterine tumour, and kept the upper extremity of the instrument directly upon the fundus, and with the dorsum of the hand in the concavity of the sacrum, directed the force in the axis of the pelvic cavity, putting the vagina completely upon the stretch. Patient suffered but little during the operation, little flooding, and quite comfortable afterwards. Recovered perfectly. (*J. P. White, Am. Journ. Med. Sci.*, July, 1858.)

CASE 87. *Inverted uterus*—primipara, age 29; child stillborn, and delivered by forceps after ergot had been given. In half an hour uterus contracted, and the placenta adherent with inverted uterus, was forced into the vagina, followed by hemorrhage, fainting, &c. It was at once replaced, and the patient recovered. (*J. G. Crosse, Prov. Med. Journ.*, June 12, 1844.)

CASE 88. *Complete inversion removed by ligature; recovered*—same patient as above, aged 31, second labour, natural, eight hours' duration, female child, living, followed by severe hemorrhage, placenta partially adhering; hand was introduced into uterus, and the placenta removed

piecemeal; much flooding. Twelve hours after, the patient was faint, pallid, cold, nearly pulseless; on examination, the uterus was found in the vagina, inverted, of the size of the fist; attempts at reinversion failed, owing to the firm contraction of the uterine tumour, and the very feeble state of the patient. Four days after, the inversion from partial, became complete, on the patient raising herself incautiously, and straining at stool, while the inverted uterus was forced beyond the os externum and external labia. The tumour measured twelve inches in circumference, and protruded five and a half inches at external labia. The tumour was covered with soft linen, and encircled with a bandage; urine drawn off twice daily. Surface of tumour of a florid red colour, tender, vascular, and in some places ulcerated. Fifteen days after delivery, the length of the inverted organ was three and a half inches, greatest circumference, eight and a half inches. One month after delivery, a silk ligature was applied to the neck of the uterus, and tightened every few hours. The ligature was removed at the end of twelve days; the tumour came away, and the patient had a perfect recovery. (*J. G. Crosse, loc. cit.*)

Case 89. *Inverted uterus mistaken for polypus, and removed by ligature; recovery*—age 32, married fourteen years, second confinement, attended by midwife, labour painful and protracted, profuse flooding, placenta adhering, followed by profuse sanguineous and mucous discharges, dragging in direction of round ligaments, pains and weakness in back, &c. Some months after, she was found labouring under hectic fever, profuse night-sweats, hacking cough, great prostration, &c. A tumour, the size of a large pear, occupied the vagina, the vagina irritable, and ulcerated; a ligature was applied, supposing it to be a polypus, and tightened every day. On the eighteenth day, it came away, with the uterine tumour; recovery slow, but perfect. (*J. M. Esselman, Am. Journ. Med. Sci.*)

Case 90. *Uterus extirpated for inversion; recovery*—a large polypus attached to the fundus uteri, inverted the organ by its weight; when discovered, it was the size of a man's fist. Hectic fever, great prostration, &c., present. The tumour was seized with the double forceps of Museaux; the whole mass was thus drawn beyond the external organs of generation, and being held fixed in this position, was extirpated by means of a strong pair of curved scissors. The woman did well. (*M. Luytgaerens, Ed. Med. and Surg. Journ.*, July, 1840, p. 281.)

Case 91. *Complete inversion successfully treated by ligature*—H. B., age 39, eighteen months' standing; much pain followed the application of the ligature. Threatening of peritoneal inflammation, requiring the use of leeches, and considerable constitutional disturbance. The tumour separated, with the exception of its peritoneal lining, on the twelfth day; this was divided with scissors, it contained part of the Fallopian tubes and round ligaments; recovered. (*Windsor, Med.-Chir. Trans.*, vol. x. p. 364.)

Case 92. *Inversion successfully treated by ligature*—Mrs. G., æt. 26, three months' standing. Ligature applied April 13, 1837; much pain produced. It was observed on the 14th and 15th; on the 17th, the canula was removed, and the ligature left loosely on. On the 18th, it was again tightened, and this was done daily till the 6th of May, when the tumour came away; recovered. (*Newnham, on Inversio Uteri*, p. 31.)

Case 93. *Inversion treated by ligature*—more than two years' standing. Ligature came away on the tenth day; patient suffered from emaciation, cough, ecthyma of the legs, pain, and profuse vaginal discharges. She recovered from the operation, but died of phthisis nine months afterwards.

Ligature made of fine, well-annealed silver wire and silk, twisted. (*Johnson, Med.-Chir. Trans.*, vol. xxxv. p. 141.)

CASE 94. *Inverted uterus successfully removed by ligature*—an elderly woman, many years' standing; continued and profuse hemorrhages. The tumour came away, after a considerable time, much softened and decomposed. Ligature same as in the preceding case; recovered. (*Johnson, loc. cit.*, p. 141.)

CASE 95.—*Inversion successfully treated by ligature*—Mrs. M., age 20, upwards of fourteen months' standing; supposed at first to be a polypus, and tied as such. So much pain was produced on tightening the ligature, that the error was discovered; it was not, however, loosened, and the tumour came away in three weeks. Violent pains, nausea, vomiting, and threatening of peritonitis were produced; catamenia returned. Ligature the same as in the preceding case; recovered. (*Johnson, loc. cit.*, p. 142.)

CASE 96. *Inversion treated by ligature*—age 27, six years' standing. Application of ligature followed by pain and retention of urine. It was removed on the second day; reapplied after an interval of three weeks, and the tumour which consisted of the fundus of the uterus, and part of the Fallopian tubes came away on the nineteenth day. Ligature same as in the preceding case; recovered. (*Johnson, loc. cit.*, p. 142.)

CASE 97. *Inverted uterus successfully treated by ligature*—age 60; complained of a tumour which hung down from the external parts, between the thighs, attended by a discharge of mucus and pus, so profuse as to make her extremely weak. On examination, Mr. Clark found it to be the inverted uterus, the whole surface in a state of ulceration. The vagina was also partly inverted, the surface being partially in a state of ulceration. A ligature was applied round the upper part of the uterus, and tightened daily till the eleventh day, when it sloughed off. Very little pain was suffered, and the woman recovered. (*Denman's Mid.*, p. 593, Am. ed.)

CASE 98. *Inverted uterus removed by ligature; recovery*—age 24; uterus inverted by midwife making forcible traction on funis to extract placenta. Ten hours after, while sitting up in bed, the womb prolapsed, but was immediately returned, and this occurred for several weeks. Five years after she complained of constant aching in the back, headache, and nausea, with palpitation on slight exertion. The tumour was only felt in the vagina, when the patient strained. A ligature was passed round the neck of the tumour with Gooch's canula, but had to be loosened a few hours after from the severity of the symptoms. On the eighteenth day the neck of the tumour was half cut through, and on the twenty-eighth the remaining portion was divided with the bistoury. The discharge was acrid, highly offensive, and irritating. The tumour equalled in size the head of a five months' fœtus. Six weeks after the patient was in excellent health, slight weakness of the back alone remaining. (*A. H. McClintock, Dublin Journ. of Med. Sci.*, March, 1835, p. 42.)

CASE 99. *Partial inversion; uterus removed by ligature*—Mrs. D., age 37; miscarried, followed by hemorrhage, which, on the second day after, greatly increased, and a tumour, size of a man's fist, appeared at vulva. Fourteen days after delivery, a tumour "large as a child's head," came down externally. The next day it was discovered to be the inverted uterus. A ligature of shoemaker's twine was placed around the neck, and tightened daily, giving rise to great pain, numbness of right thigh, and distress in urination. Five days after the tumour, partly destroyed by sloughing, was cut away; patient recovered. (*Weber, Siebold's Journ.*, 1826, p. 406.)

CASE 100. *Complete inversion treated by ligature*—age 19; midwife dragged on the funis and inverted the uterus; placenta adherent; tumour, size of a child's head, soon became inflamed and gangrenous. Ligature was applied in a few days, followed by convulsions and painful draggings in the loins, followed by diarrhœa, general œdema, &c. Tumour separated on the seventeenth day; patient recovered. (*Faivre, Journ. de Méd.*, Aug. 1796, p. 201.)

CASE 101. *Inversion; uterus removed by ligature*—two years' standing. Pain following the application of the ligature was easily borne, and the nervous symptoms slight. The tumour came away on the nineteenth day. All hemorrhage ceased, and though the catamenia never returned, her health was not affected. Patient was alive forty-two years after the operation. (*Martin, Med.-Chir. Trans.*, vol. xxxv. p. 142.)

CASE 102. *Inversion treated by ligature*—six months' standing; first taken for a polypus. Ligature applied in July, 1835. The pain was so excessive that it was removed in an hour. The case was then recognized as one of inversion. A ligature of catgut was applied on the 4th of August, and not drawn very tightly. Severe pain followed, and recurred whenever it was tightened, which was relieved by opiates. Tumour came away on the 21st August, the seventeenth day. Catamenia replaced by sanguineous discharge, occurring monthly. (*Med.-Chir. Trans.*, vol. xxxv. p. 143.)

CASE 103. *Inversion treated by ligature*—æt. 54; ligature applied April 12th, 1804, and tightened on the 14th, 20th, 23d, and 26th. Tumour cut off on the 2d May, being quite dead; patient recovered. (*Loc. cit.*, p. 143.)

CASE 104. *Inversion treated by ligature*—three years' standing; ligature applied with success; patient recovered. (*Bouchet (Père), Lisfranc, Clin. Chir.*, vol. iii. p. 400.)

CASE 105. *Inverted uterus; ligature*—sixteen months' standing. Ligature applied with Hunter's needle. Uterus came away softened on the eleventh day; no bad symptoms; recovered. (*Blundell, Obst. Med.*, p. 808.)

CASE 106. *Inversion*—ligature was applied, but the patient being of an irritable constitution, it required to be frequently loosened. Tumour ultimately came away, and the patient recovered. (*Blundell, loc. cit.*, p. 808.)

CASE 107. *Inversion treated by ligature*—upwards of two years' standing. Ligature applied, and tightened every other day; so much pain each day as to require an opiate. Tumour came away on the fourteenth day. Pain and vomiting occurred throughout the treatment. Enjoyed good health for more than twenty years. (*Gooch, Dis. of Women*, p. 263.)

CASE 108. *Inversion; ligature*—age 31; one month's standing. Patient had been the subject of inversion in her first labour, two years before, after the use of ergot and the forceps. Now the inversion was complete, and the tumour protruded externally. Ligature applied February 12th, on the neck of the uterus; pain in the lower part of the abdomen and in the loins followed, which was relieved by opiates. The ligature was gradually tightened, and on the 18th February the tumour was flaccid, dark, and putrefying, and it was cut off below the ligature. On the 20th, the ligature was removed. Catamenia suppressed entirely; recovered. (*Crosse, Prov. Med. & Surg. Journ.*, vol. viii. p. 155.)

CASE 109. *Inversion cured by ligature*—two years' standing. Profuse hemorrhage at the monthly periods. The tumour was drawn down with a volsellum, and strong silk ligature applied with great firmness, with the half of a double canula, and an eyed steel staff. Tumour came away in nine days. Reaction from the time of operation very moderate. An occasional anodyne required, and the catheter was twice used. The entire body and

neck of the uterus were removed. Patient up in twenty days, and recovered. (*Greyson, Med. Gazette*, vol. xxxvii. p. 342.)

CASE 110. *Inversion; ligature*—Mrs. M., age 27. Confined in April of second child; placenta was delivered in pieces, but afterwards the parts were apparently *in situ*. Without any evidence of inversion, the patient had floodings to a greater or less extent till the end of August, when the doctor was called on account of a tumour in the vagina, which was represented to be of recent origin. He found an ovoid tumour low down in the vagina, griped firmly at its base by the os uteri; it was not particularly sensible to the touch. The patient feeble and anæmic. A ligature of whipcord was placed firmly round the base of the tumour, close to the os uteri, with the double canula. The tightening of the ligature caused some pain, which was followed by a fit of hysteria, and syncope of considerable duration. A similar paroxysm followed every tightening of the cord. Canula with the ligature and tumour came away on the twenty-first day after its application. The patient recovered, and had a slight sanguineous discharge very regularly at monthly periods from the vagina, which was always preceded by slight headache. The size of the uterine tumour removed, was that of a small orange, but more oval. (*H. Davies, Med.-Chir. Trans.*, vol. xxxv. p. 145.)

CASE 111. *Inversion; ten months' and a half standing*—ligature applied June 5th, 1840. Rigors occurred three or four hours after the operation, followed by symptoms of violent peritoneal inflammation. Distress was so great, and danger so urgent, that the ligature was removed twenty-four hours after its application. Nothing solid passed from the vagina. Health was restored, and catamenia appeared July 13th, without pain or expulsion of coagula, and did so regularly afterwards without hemorrhage. (*Ramsbotham, Principles and Pract. of Obst. Med. and Surg.*, p. 541.)

CASE 112. *Inversion*—Dubois relates a case where the uterus was ligated for excessive hemorrhage, and the severity of the symptoms necessitated the removal of the ligature before extirpation was effected. (*Boivin & Duges*, vol. i. p. 242.)

CASE 113. *Inverted uterus*—age 36; three months' standing; mistaken for polypus; ligature was applied, and the patient cried out with pain. It was removed the following day, but she nevertheless sank and died on the fifth day. (*Velpeau, Clin. Chir.*, vol. ii. p. 423.)

CASE 114. *Inverted uterus*—age 24; mistaken for polypus; placenta adherent to the tumour, which hung between the thighs. The young surgeon who mistook the nature of the case, removed the placenta and ligatured the tumour on the day of delivery, July 6th, 1824. This arrested the hemorrhage, and he then returned the mass into the vagina. The tumour came away on the 1st of August. Death on the 12th, from peritonitis. (*Boivin & Duges*, vol. i. p. 242.)

CASE 115. *Inverted uterus mistaken for polypus*—age 37; disease of twelve months' standing. The vagina occupied by a pediculated tumour the size of a large egg, the pedicle that of the forefinger. The disease pronounced to be polypus by three of the first accoucheurs in London, two of them present at the operation. The operator, less certain of its nature, proceeded to the removal of the tumour with caution; having drawn this out of the vagina, the pedicle was exposed, and incised layer by layer; immediately on its being ascertained that the case was one of inversion, the knife was laid aside, and a ligature applied tightly above the incision.

Peritonitis; death in four days. (*Arnott, Med.-Chir. Trans.*, vol. xxxv. p. 148.)

Case 116. *Inversion treated by excision*—age 24; three years' standing. The tumour was removed with a knife. The finger entered the peritoneal cavity, and felt intestines distinctly. The operation was followed by acute pains, cramps, extreme restlessness, and faintings, which continued with great intensity for three days. Little hemorrhage. In less than a month the patient was well. The whole body of the uterus was removed; a portion of the neck only being left. (*Velpeau, Clin. Chir.*, vol. ii. p. 441.)

Case 117. *Inversion treated by excision*—age 35; fifteen years' standing. Two strong threads first passed through the root of the tumour for the purpose of restraining hemorrhage, but they were not tied. The uterus was then drawn down, and the fundus and part of its body removed, and the vagina was plugged. Patient died of peritonitis in two days. (*Velpeau, Gaz. des Hôpitaux*, vol. vi. p. 413.)

Case 118. *Inverted uterus treated by ligature and excision*—age 23; eighteen months' standing. The ligature was applied, which was followed by repeated and severe pains, each time relieved by laudanum. When tightened, the pain was again so violent that it was necessary to loosen it. This occurred several times; at length a fresh ligature was applied around that portion of the tumour not destroyed, and it was removed by the knife. Peritonitis was threatened, and there was swelling of the left leg and thigh. Patient was well in thirty days. Catamenia did not return. (*Laperre, Velpeau, Clin. Chir.*, vol. ii. p. 443.)

Case 119. *Inversion treated by ligature and excision*—eleven months' standing; mistaken for a polypus. A ligature was applied, which was followed by great pain, severe vomiting, and watchfulness. Not having produced the desired effect, it was removed at the end of a fortnight. The hemorrhage, however, ceased, and the health greatly improved. One day, on some effort being made, a large tumour shot suddenly out of the vagina. A ligature was then placed above the indentation produced by the old one, and the tumour was excised below it. Patient was quite well in six weeks; no return of catamenia. (*Clarke, Edin. Med. & Surg. Journ.*, vol. ii. p. 419.)

Case 120. *Complete inversion treated by ligature and excision*—M. G., age 37, five weeks' standing; uterus inverted and protruding externally. An armed seton needle was passed through the vagina, and each half of it was included in a ligature. Another ligature was then placed around the whole vagina above this. The vagina was thus divided, by which one inch and a half of its length, and the whole of the uterus, were removed. The lower ligature came away in nine days; the upper one remained on longer. In six weeks the patient was quite well. An appearance of the catamenia on the 24th of October, and once afterwards. (*Baxter, Med. & Phys. Journ.*, vol. xxv. p. 210, and *Med.-Chir. Trans.*, vol. xxxv.)

Case 121. *Inversion treated by ligature and excision*—confined January 27, 1795; considerable flooding directly afterwards; a tumour discovered next day in the vagina. On the eighth day it was expelled, and the uterus was inverted with it. It was separated to the fundus to which it strongly adhered, but the uterus could not be replaced. A ligature was therefore passed round the neck of the uterus close to the os externum, and after waiting six hours the uterus was excised below it. No pain or uneasiness followed. Patient was out of bed in fourteen days, and well in a month. No catamenia afterwards. (*A. Hunter, Duncan's Med. Annals*, vol. iv. p. 366.)

CASE 122. *Complete inversion treated by ligature and excision*—age 41; six years' standing; quite external and ulcerated. First ligature of Indian twist applied 26th March, other ligatures afterwards applied at different times, of whipcord, catgut, and wire, as the previous ones had not answered the purpose. A circular slough formed, but there was much difficulty in completely destroying the tumour. Violent pain, spasms, and vomiting, were induced by the ligatures. During the treatment the ligature was withdrawn for a week, owing to the severity of the symptoms. On the 16th of December the tumour was excised, and profuse hemorrhage occurred from some arteries, which were tied. December 31, able to leave her lodgings. January 8, superintending her domestic affairs. In three weeks a protrusion of intestine occurred through the broken cicatrix, but from this she recovered. (*Moss. Lancet*, vol. i. p. 359, 1837.)

CASE 123. *Complete inversion, treated by ligature and excision*—age 26; eight months' standing. Ligature applied June 6th, 1840, and the tumour excised below it. The latter proceeding was not attended with much pain, and but little blood flowed. Two hours afterwards there was pain of the abdomen and threatening of syncope. Patient died June 9th. Autopsy revealed six or eight ounces of blood in the lower part of the peritoneal cavity, with some signs of inflammation. The portion included in the ligature had slipped through it. Eighty leeches were applied. Death was attributed to the loss of blood, and not to the peritonitis. (*Velpeau, Clin. Chir.*, vol. ii. p. 445.)

CASE 124. *Partial inversion, treated by ligature and excision; death*—age 26. Patient much blanched by constant hemorrhage. Tumour, the size of a large pear, attached by a pedicle one inch and a half in diameter to the posterior half of the os uteri. The os uteri was dilated, and was felt as a thin layer around the anterior half of the tumour. It was supposed to be a polypus. A ligature was applied on the 18th of March, 1850, and the operation was followed by pain; but no symptoms of peritonitis. The patient passed a good night, but on the following day sickness and insensibility came on; the latter symptoms continued, with only a slight interruption on the day preceding her death, which took place on the 25th of March. Post-mortem examination revealed injection of the lining membrane of the ventricles of the brain, softening of their surface, and the central portions of both hemispheres, with slight extravasation of blood into the softened substance. The fundus, body, and part of the neck of the uterus were inverted. The portion of the organ below the ligature was gangrenous, and had partly separated. (*C. H. Hawkins, Med.-Chir. Trans.*, vol. xxxv. p. 152.)

CASE 125. *Inversion; uterus mistaken for polypus; treated by ligature and excision; death*—three or four months' standing, supposed to be polypus. The first application of ligature gave no pain. Next day, on its being tightened, great pain followed, which was relieved by withdrawing the canula. On the third day the ligature was twisted; and on the fourth, the tumour was excised below it, as it was supposed that its vitality was destroyed. This was followed by great loss of vital power, but no vomiting or peritonitis. Death took place in twenty-four hours from the shock of the operation. (*Forbes, Med.-Chir. Trans.*, vol. xxxv. p. 152.)

CASE 126. *Fibrous tumour mistaken for inverted uterus*—Jan. 1, 1830, a middle-aged woman was brought nearly insensible into Middlesex Hospital, London, with a great globular tumour, covered with blood, hanging out of the vagina between the thighs; the patient appeared to suffer great pain when it was touched, and it presented precisely the appearance of an

inverted uterus, the only difference being that it was more dense and compressible. Dr. H. Ley, Sir Charles Bell, and other surgeons of eminence examined the patient, and pronounced it a case of inverted uterus, and repeated unsuccessful attempts were made to reduce it. She died the next day from loss of blood, exhaustion, and peritoneal inflammation. Autopsy demonstrated that what had been supposed to be an inverted uterus, was a great fibrous tumour, covered with the lining membrane of the uterus, and attached to the cervix by a very thick coat. (*Lee's Mid.*, p. 412.)

CASE 127. *Polypus mistaken for inverted uterus; death*—Mr. Borrett was called to a lady in labour with her sixth child; found a large fleshy tumour within the vagina. Anterior lip of os uteri easily felt, posterior was occupied and covered by an attachment of the tumour, after the os had sufficiently dilated and membranes burst, the hand was introduced and the child delivered by the feet. Placenta expelled spontaneously. Left the patient at 7 A. M. and returned at 3 P. M., found her in strong pains, abdomen flat, contracted uterus, easily felt above pubis; at 8 P. M. pains continuing violent; found, on examination, a soft round tumour in upper part of vagina. Pains continued violent all night; next morning, a large, fleshy, livid tumour had been forced out of the vagina. She sank gradually, and died the next morning. Mr. Rigby examined soon after death, and pronounced it a case of inverted uterus. Autopsy revealed the uterus contracted, the orifice dragged down to os externum by a tumour, which grew from it by a thick stalk; it was attached to the posterior part of the cervix uteri, of a livid colour, and weighed three pounds and fifteen ounces. (*Lee's Mid.*, p. 413, related also by Gooch.)

CASE 128. *Complete inversion*—caused by pulling on cord by midwife; placenta adherent; profuse hemorrhage. The placenta was separated soon after by Dr. Fifield, and the uterus reposited; stimulants administered, and the patient rallied somewhat. Died in a few hours. On examining, cords were found tied around the thighs to arrest the hemorrhage. The account given by the midwife was, that she made no examination, and suddenly a violent pain came on, the child was expelled and the womb protruded. (*Fifield, Bost. Med. and Surg. Journ.*, vol. lxii. p. 907.)

CASE 129. *Complete inversion; uterus removed by linear écrasement: recovery*—age 22; very anæmic; admitted into the Dublin Lying-in Hospital, September, 1858. For twelve months had suffered very profuse discharges of blood, always coming on at the menstrual periods, and lasting for fourteen or twenty-one days. A pediculated tumour, of pyriform shape, and of the size of a walnut, was found low in the vagina; the neck of this tumour was embraced, but not constricted by the thin os uteri; it was quite insensible to ordinary manipulation; its surface was smooth, dark pink, and discharged blood when scratched. The patient had been delivered by a rude country midwife fourteen months before; the cord was broken by pulling on it. The tumour being drawn down by a volsellum, the os was entirely effaced, the vagina becoming quite continuous with the neck of the tumour. This led to the conclusion that the case was one of inverted uterus. Several attempts were made under chloroform, to effect reinversion, without success. On the 20th of October a silk ligature was passed around the neck of the uterus by Gooch's canula; this caused much pain, and some vomiting. In the evening the ligature was tightened, and again on the next day. After forty-eight hours the *écraseur* was applied below the ligature, the uterus having been drawn down by a volsellum. The chain was worked very slowly, the uterus being severed in eight minutes.

Pain attended the operation, and febrile excitement followed; opium was given, and turpentine epithems applied. In a fortnight the patient was allowed to get up. Six weeks afterwards the os uteri presented almost the ordinary appearance. A catheter passed about one-third of an inch up the cervical canal. On 27th of Dec. patient quite well, but had not menstruated. (*Dr. McClintock, Brit. and For. Med. Review*, April, 1859.)

CASE 130. *Complete inversion, treated by ligature*—age 22; second child; caused by removal of placenta; great hemorrhage. Inversion discovered, but no immediate attempts at reduction made. Great flow of blood at menstrual periods; perfectly bloodless and emaciated. None of the ordinary symptoms of anæmia present. Eighteen months after Dr. W. Channing made persevering attempts at reduction, but failed. Etherization not practised. Walls of abdomen thick, tense, and unyielding. The attempt produced violent resistance, and profuse hemorrhage. State of the external organs made the passage of the hand into the vagina impossible, or difficult to reach the womb. The ligature was accordingly applied on the 10th of June, womb came away on the 29th; patient did well. (*W. Channing, Bost. Med. and Surg. Journ.*, July 7, 1859.)

CASE 131. *Complete inversion; unreduced; death*—Mrs. ——, attended by a regular physician; labour severe; presentation natural; strong uterine contractions at the close; after-birth suddenly expelled; great hemorrhage; partial inversion followed, but was not detected by the physician. After the flow had ceased, on rising to pass water, felt something heavy and large pass the external organs, accompanied by great hemorrhage and pain. The uterus was restored to the vagina; occasional hemorrhage, very profuse, occurred; attempts to reduce the womb failed; palliatives were employed, but the patient became more reduced and anæmic, and died several months after the occurrence of the accident. (*W. Channing, Bost. Med. and Surg. Journ.*, vol. xl. p. 230.)

CASE 132. *Complete inversion; reduced; recovery*—Mrs. A., natural labour; placenta adherent, was taken away by force, being torn in three pieces, during which the uterus was inverted. Great hemorrhage followed, and severe pain, and prostration. The uterus was returned to the vagina or pelvis, the physician supposing he had reposited it; hemorrhage continued. Dr. C. was called in, "found a bowl-like cavity above the pubis," neck of the womb surrounded by a firm, fleshy ring, exquisitely tender; womb in the vagina. Firm pressure was made upon the womb, by grasping it forcibly in the hand, afterwards pressure upwards, the tumour receded, at first slowly, and as it passed the os, suddenly, by a bound. The patient had a good convalescence. (*W. Channing, ibid.*, p. 231.)

CASE 133. *Complete inversion*—Mrs. B., regular labour; last pains very violent; the child and after-birth rapidly expelled, and the womb inverted, all by the same continuous effort. The attending physician returned the uterus within the vagina. Dr. C. was sent for, who at once reduced it in the usual manner. The womb was entirely relaxed; no contraction took place after the last pain. (*W. Channing, ibid.*, p. 231.)

CASE 134. *Complete inversion; womb removed by ligature; recovery*—Mrs. C., age 24, natural labour; placenta adherent, was forcibly removed in pieces, with great pain, and much flooding. Inversion doubtless occurred at this time; occasional hemorrhages, great exhaustion, anæmia, &c., followed. No examination seems to have been made by her attending physician, who also had attended her in labour, and the inversion was not detected till one year afterward, when Dr. C. was called in. The uterus

was ligated, and came away in due time; recovered, but no menstruation afterwards. (*W. Channing, ibid.*, p. 232.)

Case 135. *Complete inversion*—Mrs. ——, age 22, natural labour, placenta adherent, and removed by force, followed by great pain and hemorrhage. For a year troubled with floodings, and the other usual symptoms of inversion. Another physician was called in, and detected inversion, hitherto undiscovered. Dr. Channing was now called; found patient greatly prostrated, and sinking rapidly. Applied a ligature to the womb; this was gradually tightened as the patient could bear it. Ligature and uterus came away on the thirtieth day. Diameter of uterine mass two and a half inches, very solid; good recovery. (*W. Channing, ibid.*, p. 232.)

Case 136. *Complete inversion; ligature; death*—Mrs. ——, age 35, labour natural; inversion somehow occurred, but was not discovered by the attending physician. Flooding, exhaustion, emaciation, pain, &c., followed. At the end of one year, Dr. C. was called in, and detected inversion. Ligature applied; tightened daily; at about the tenth day she was moved for the purpose of changing her dress and bedding; patient fainted, and became cold, reaction could not be brought on, and on the third day after she died. Examination showed the ligature held by a mere thread of fibre; separation of the womb was perfect, and not the smallest evidence that the ligature had caused disease. (*W. Channing, ibid.*, p. 233.)

"Four other cases of inverted womb," says Dr. C., "have occurred in my neighbourhood, two of which I heard of, which were treated by ligature, by other physicians, and successfully. They present one fact, in which they were related to many of the cases which have come under my notice; they were not diagnosticated at the time when inversion happened, and their symptoms were, of course, ascribed to something else. In two of the four cases above referred to, inversion was taken for polypus. The ligature was applied, the pain of tightening it in both cases far exceeding that which is ever felt in polypus treatment (some slight and temporary pain being now and then felt in the latter). The tumours in both cases were regarded as polypus, until being presented by the operators at meetings of medical societies, they were found to be *inverted uteri*. The patients recovered." (*Loc. cit.*, p. 231.) Another chronic case of inversion is also reported by Dr. C. as having been seen by him, but the particulars are not given. We are, however, left to infer that the inversion had not been detected by her former physician. (*Ibid.*, p. 229.)

Case 137. *Spontaneous inversion and gradual replacement of the uterus by mechanical means; recovery*—primipara, not discovered till the third day after delivery; at what time, or in what manner it took place, was not clearly known. The uterus was protruded nearly an inch from the external orifice of the vagina, and its mouth carried high up; orifice completely contracted. Efforts to replace it caused great pain, and were unsuccessful; frequent syncope, pulse thready, and her countenance deathlike. Subsequent attempts at replacement, caused syncope and convulsions, and were useless; urine had to be drawn off by the catheter; repeated hemorrhages; a staff eight inches long was now made, with a knob of the size and form of a hen's egg, at one extremity, the fundus uteri, having been depressed with the end of the thumb as far back as possible into the cavity, the knob of the staff was then introduced into the depression, and the other end fixed by a moderately tight T bandage; after this, the patient had little pain, and all bleeding ceased. On the sixth day after delivery, and the third after the introduction of the staff, it was withdrawn,

and the vagina cleansed. The fundus uteri had already been forced two inches upwards; the same treatment was continued, and the next day the uterus was found completely reduced. The patient had a favourable recovery. (*Borggreve, Medicinische Zeitung*, June 9, 1841; *Brit. and For. Med. Rev.*, April, 1842.)

CASE 138. *Complete inversion, unreduced, attended with trifling inconvenience.*—Lisfranc relates a case of a woman, aged 70, while convalescent from bronchitis, was permitted to remain in La Pitié; she exercised in the court of the hospital, the greater part of the day; her appetite and digestion were excellent; she experienced no pain in the pelvis, and had no vaginal discharge. She afterwards died from a second attack of bronchitis. On dissection, the uterus was found completely inverted. (*Lisfranc, Clin. Surg.*, vol. iii. p. 393.)

CASE 139. *Inversion of uterus; ablation of womb; death*—labour natural; placenta adherent, and broken by pulling at the funis; great hemorrhage in consequence; the attendant left. In fifty hours was sent for, no attempt having been made to relieve the patient, and on his attention being called to something hanging from her, he used considerable exertion, giving great pain, and saying there was a false conception, proceeded with a pair of scissors to remove it, during which the patient fainted and died. The parts removed were preserved, and proved to be the uterus, right ovarium and tube, part of the vagina, part of the left Fallopian tube, the greatest part of the rectum, cæcum, appendix vermiformis, the ascending portion of the colon, the right side of the transverse arch, all the ileum, and inferior part of the jejunum, altogether many feet of the small intestine, with part of the mesentery, and the greater part of the omentum majus, which had been torn away from the right side of the large curvature of the stomach, &c. The practitioner was tried for murder and acquitted. (*John Boy's Ramsbotham's Process of Parturition*, Am. ed., p. 616.)

CASE 140. *Inversion remaining undetected for twenty-five years.*—March, 1858, I was called to see Mrs. J. D., age 45, who was suffering from severe occasional hemorrhages, and had been for twenty-five years, which had produced excessive anæmia, debility, and suffering, for the whole of that long period. Her sickness and ailments dated from the birth of her first and only child. On examination, I found a tumour of a conical shape projecting into the vagina, which I supposed was a polypus, or fibroid tumour, but a second examination satisfied me that it was the uterus inverted, inasmuch as the os uteri could be felt forming a ring at the upper part of the vagina, and embracing the root of the tumour, without adhering to it, the finger passing between the ring and the root of the tumour, but soon checked by a circular *cul-de-sac*. On explaining the nature of the case to the patient, a very intelligent woman, she expressed her belief that the accident occurred at the period of the birth of her only child, twenty-five years ago. She represented that her labour was natural but tedious, that the after-birth not coming away, the doctor in attendance, a regular physician, removed it, using considerable violence, that it was followed by severe flooding and faintings, which recurred at intervals, and kept her weak and miserable; that she had never since enjoyed comfortable health, or been capable of doing much work about the house, being subject every two or three weeks to great loss of blood, &c.; that she had employed several physicians, but none of them proposed a vaginal examination, nor had discovered the nature of her malady. I proposed to remove the uterus by ligature, to which the patient gave consent; but as she had reached that

period when the menstrual flow generally ceases, it was suggested to wait a few months, as her life was in no immediate danger, and see whether it might not make a favourable change in the state of her general health. In a few months the hemorrhage entirely ceased, and for the last year she has enjoyed a very comfortable state of health, her anæmic symptoms and general debility have also disappeared; she is able to take a good deal of exercise, and, in short, so much is she improved every way, that the idea of an operation has been abandoned. (*C. A. Lee.*)

Case 141. *Partial inversion; unreduced; feeble health*—primipara; seen by Dr. Robert Lee fourteen hours after the accident, who states that it was the only case of inverted uterus he had seen in London. Labour easy; *umbilical cord very short and twisted firmly round the neck;* placenta spontaneously expelled in half an hour after delivery, with the inverted uterus attached to it. Placenta was detached, and efforts made to reduce the womb, which proved unsuccessful, owing to the firm contraction of the neck. Hemorrhage not very profuse; uterus felt to the touch like a soft cricket ball. Patient suffered ever after from pain, profuse menorrhagia, and leucorrhœa. (*Robert Lee's Midwifery*, Am. ed., p. 416.)

Case 142. *Reduction of an inverted uterus of fifteen years' duration; death*—patient 17 years of age when inversion occurred, in labour with her second child. Fourteen days after the accident she was seen by Dr. White, and inversio uteri was diagnosticated. Has since been subject to repeated hemorrhages and constant leucorrhœa, and become very much prostrated and anæmic. Reduction was effected fifteen years after by Dr. White, in about fifty minutes. Chloroform was administered, and the difficulty of reduction is stated to have been little if any greater than in the case of six months' standing (see Case 85). Died sixteen days after of peritonitis. Post-mortem examination, six hours after death, disclosed considerable liquid effusion (from two to three pints), turbid, and containing flocculi of lymph in the peritoneal cavity, and lymph between the intestinal convolutions. The uterus was normal in size; the os presented nothing abnormal; no trace of any laceration anywhere; its structure and inner surface appeared healthy, although upon its exterior surface were a few patches of soft, loosely-adherent lymph; *ovaries* normal in size and appearance. (*J. P. White, Am. Journ. Med. Sci.*, July, 1858, p. 13.)

Case 143. *Spontaneous complete inversion; reposited; recovery.*—Dr. George J. Fisher, of Sing Sing, has kindly communicated to me the following interesting case of spontaneous inversion: "Mrs. E. P. B., an American lady, aged about 26 years, was taken in labour with her second child, Feb. 9th, 1855. The labour, if at all remarkable, was characterized by the suddenness and violence with which the uterine contractions returned, lasting but a few seconds, and relieved by long intervals of perfect freedom from pain. The patient was cheerful and hopeful in the intervals of the paroxysms. Six hours from the commencement of the labour she was delivered of a male child, well formed, weighing about eight pounds. The patient and nurse informed me that in her first confinement the placenta was adherent, requiring the introduction of the hand to separate it from the uterine connections. Having learned this history of her previous delivery, I avoided the slightest traction on the cord. I remained by the side of the patient for nearly half an hour before the first contraction occurred; during which time I held the umbilical cord loosely in one hand, laying the other over the lower part of the abdomen, the patient in the mean time conversing freely about her previous confinement, and the probabilities of

being subjected to the same operation for the removal of the placenta. Without the slightest premonition, she was suddenly and violently seized with one of those paroxysms of uterine contractions, accompanied with a shriek much louder than when the child was expelled. She instantly fainted, became cold, pulseless, and presented every appearance of immediate dissolution. At the moment of this fearful pain, I felt the placenta come down in contact with my hand. I attempted to remove it, but found that it was attached. I discovered to my great astonishment that the womb was inverted, and that the placenta was adhering by several square inches. After gently separating the placenta from the fundus of the uterus, which had been expelled beyond the labia pudendi, an effort was made to compress and return the womb; but as the patient's vitality had been so much depressed by the shock of the accident, I feared to persevere until measures were taken to rally the energies of the nervous and circulatory systems. Therefore the immediate restoration of the organ was abandoned; two hours were expended in efforts of this kind, by the liberal use of general and diffusive stimulants, artificial heat, &c. At the end of this time an effort was made, which soon resulted in restoring the womb, in *situ naturale;* very little hemorrhage occurred during the time. The patient remained greatly prostrated for many days A highly putrescent vaginal discharge continued for nearly two weeks, accompanied by hypogastric tenderness, chills, and a low grade of irritative or puerperal fever. The patient had a lingering convalescence, and has since suffered from uterine disease, characterized by purulent discharge from the uterine cavity. Nearly three years elapsed before she was able to be generally about house. She was subjected to a variety of treatment, such as touching with solid nitrate of silver, intra-uterine injections of a solution of nitrate of silver, which I now regard as extremely dangerous treatment. The purulent discharge ceased under the use of Dr. B. Fordyce Barker's uterine ointment, composed of crystals of nitrate of silver, extract of belladonna, and spermaceti. This I introduced into the uterine cavity with an improved ointment tube, having a piston, &c. Under this treatment every five or six days, through several weeks, she is quite restored to health. This ointment is very kindly borne by the uterine surface, and is the best alterative I know of."

CASE 144. *Spontaneous partial inversion; reduced three weeks after delivery; recovery.*—For the history of the following case of inversion I am indebted to my friend, Prof. J. P. White, M. D., of Buffalo. "This case," he remarks in a recent letter, "occurred in the practice of Dr. Mackay, of this city. It was incomplete, the fundus of the uterus protruding through the neck an inch or more. This probably was spontaneous; it certainly was not suspected until three weeks after labour, and seemed the result of violent, bearing-down pains, which were promoted, if not induced by imprudent exertions on the part of the patient. I may remark that this last case, obscure as the diagnosis certainly was, being determined only after an intelligent vaginal examination, is the only one in which the nature of the accident had been suspected by the physician or midwife having the patient in charge when the accident occurred. Dr. M. called upon me informing me of the condition of the parts, and requesting me to make the reduction. I immediately accompanied him to the residence of the patient, when I found, as he had described, a partial inversion, the os embracing firmly the body of the organ, protruding an inch, or an inch and one-fourth. Holding the fundus between the fingers of the right hand, I introduced into the vagina and brought the end of Simpson's sound covered with a rag, to

enlarge it somewhat, to bear upon the fundus, making pressure with the left hand upon the handle of the instrument external to the female organs. A few minutes of gentle pressure sufficed for its restoration, perfect quietude was then enjoined, and the woman made a perfect recovery. It is worthy of remark, that in this instance, as well as the others, the mechanism of reduction consisted in folding the uterus upon itself, the neck passing down over the body and then over the fundus of the organ, without being at all promoted by the dimpling of the fundus, as some authors contend."

CASE 145. *Complete inversion caused by midwife pulling on the cord.* —Prof. J. P. White writes to us: "My fifth case occurred in the practice of a midwife, terrific flooding succeeded, when I was sent for, and immediately reduced the inversion. The uterus was completely inverted, lying between the mother's thighs, the placenta being detached by the midwife, after inversion. She also pulled *forcibly* upon the 'tumour,' but could not 'get it away as the woman fainted, and she got scared,' and sent for me."

CASE 146. *A case of inversio-uteri supposed to be spontaneous; reposited at about the end of four months; recovery*—Mrs. S., aged 20; primipara. When in labour, April 9th, 1858, at 4 P. M., in addition to regular labour pains, complained of severe pain in right side, between fourth and fifth ribs; delivered at 7 P. M.; no unusual pains except that in the side; cord rather short, and might have pulled on the placenta, which came away at the first pain without any assistance; some flooding, but not enough to produce alarm or syncope; uterine tumour was felt above the pubis. Cloths wet in cold water were applied to abdomen. Severe pain in right side continued for several hours; after-pains about as usual. Pain in side pretty much subsided on fourth day; no fever, pain in back, or tenderness of bowels; pulse more frequent than natural; no secretion of milk. On the 19th, visits discontinued; patient supposed to be doing well. On 7th May, was called again, eighteen days after discontinuance of visits; found she had been flooding two or three days; had been up and out to her meals; sung, played on piano, &c.; had no pain in back, or soreness of bowels; hemorrhage deemed to be the only trouble. From the 7th to 18th of May, cold applications, astringent injections, &c., were used to check the flooding, without much success, when a digital examination disclosed inversion of the womb. Dr. N. S. Davis was called in consultation, and it was concluded "that as the inversion was complete, and the patient very nervous and excitable, it would be safest and best to encourage her all we could, and not then try to return it; for if we undertook to do it, in the condition she then was, we should surely fail in our attempt, and it might endanger inflammation. We therefore advised astringent injections, with nutritious diet, and encouraged her with the hope of a spontaneus replacement, as there were cases of the kind on record well authenticated; intending all the time to watch the case and reduce it when she should be in a proper condition. Visited her daily almost, till the 14th July, when she went east." The uterus was reposited successfully, a few days after the above date, by Dr. H. A. Potter, of Geneva. (*A. Fisher, Chicago Med. Journ.*, Oct. 1858, p. 510.)

Remarks.—The above case is remarkable, according to the report, for the absence of any prominent symptoms indicating inversion up to the 7th of May, nearly a month after delivery. Still I think there can be little doubt that partial inversion, at least, existed from the time of delivery, which became complete, about the time the doctor was called in on the 7th May. As no examination had been made from the time of the delivery of the placenta, it would seem to have been highly proper to have exa-

mined at this time, to have discovered the cause of the hemorrhage; but this was neglected for eleven days longer, during which the hemorrhage continued. Had the rule of Denman been followed, viz., "to examine in all cases where hemorrhage occurs subsequent to delivery, to discover whether inversion may not be present," the accident would have been earlier discovered, and probably reposition effected without difficulty. The case, in this point of view, is a very instructive one.

CASE 147. *Complete spontaneous inversion*—Mrs. A.; no physician or midwife in attendance. Dr. F. found patient in convulsions, lying on her back, bathed in a cold perspiration; pulse almost imperceptible; thought to be dying. Adherent placenta and uterus found between her thighs. The uterine tumour, nearly as large as a child's head, had passed completely through the vagina. The tumour was compressed between both hands, till its size was sufficiently reduced, when it was reposited without difficulty, and the patient did well. (*A. Fisher, loc. cit.*, p. 514.)

CASE 148. *Complete inversion*—placenta adherent; womb became inverted with the same pain that delivered the child; no pain; very little hemorrhage. The placenta was separated, and the uterus reposited; cord about six inches in length; placenta very small; recovered. (*Robert Smith, Month. Journ. of Med. Sci.*, May, 1846.)

Summary of the assigned Causes of Inversion of the Womb in the 148 *Cases above reported.*—In analyzing the above cases, it is to be regretted that many of the original reports are so imperfect, that we are often left to surmise the cause of the accident. This is what might, perhaps, be expected; for, if it is an accident—as many writers allege—which may, with proper care and skill, always be prevented, then it is not to be presumed that the practitioner who places much value on his reputation, will be forward to acknowledge that so serious an accident has resulted from his ignorance or neglect. Hence, also, we may look, not unfrequently, for cases of *spontaneous inversion*—cases in which the womb, without cause, provocation, or premonition, turned itself inside out, all at once, some days, weeks, or months, after delivery, on going to stool, straining, laughing, crying, singing, walking, or other kinds of exertion, or no exertion at all. And we are asked, in all seriousness, to wonder at such strange anomalies, and ask why nature should enact such freaks, without special object?

Accordingly, we find that of the 148 cases, of which an abstract is above given, the cause is assigned in only 62 cases, and of these 39 are stated *to have been attended by midwives*, a large majority of them in Europe. In 39 cases, moreover, we are expressly informed that the inversion occurred *from pulling on the cord*, viz., Cases 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 21, 23, 25, 30, 31, 33, 45, 48, 50, 53, 56, 59, 60, 62, 63, 64, 66, 67, 83, 85, 89, 98, 101, 129, and in 7 *from attempts to deliver the placenta*, viz., Cases 73, 88, 111, 131, 133, 135, 136. In 25 cases *the delivery was very rapid*, and we are led to infer that this was generally regarded as connected, as predisposing cause, with the event; in most of these cases, it was unquestionably so. In several instances, we are informed that the pains grew very strong towards the close, and that at last, with a violent

throe, the adherent placenta and inverted uterus simultaneously accompanied the expulsion of the child. (See Case 148.) In 20 cases the labour was *natural, but slow*, and in a majority of them, at least, there were symptoms of *uterine exhaustion*, or *adynamia uteri*, where inversion doubtless occurred from, or was favoured by the extreme relaxation, or want of contractile power in the organ. In 10 cases, the *cord was very short*, and in several twisted round the neck. 2 were *forceps cases*, 1 of *twins*, and 23 are stated to have been *primipara*, viz., Cases 9, 16, 19, 20, 29, 30, 33, 49, 55, 59, 66, 68, 80, 81, 86, 87, 100, 139. It cannot be doubted, that it may be legitimately inferred from the cases reported, that by far the most frequent cause of inversion of the womb, is *traction on the cord, and attempts to extract the placenta*, for we shall soon have occasion to observe that the placenta was adherent in the great majority of cases. So that we may adopt the opinion of Dr. Robert Lee, of London (*Lectures on the Theory and Practice of Midwifery*, Am. ed. p. 410), as very nearly correct, when he says: "*Inversion of the uterus is frequently, if not invariably, the consequence of pulling at the umbilical cord, to extract the placenta* immediately after the birth of the child, before the uterus has had time to contract, and while the placenta is still adherent. It is also stated to have happened when the child has been allowed to be rapidly expelled, when the umbilical cord has surrounded the fœtus, or been unusually short."

Spontaneous.—*Spontaneous inversion* is usually understood to apply to cases which have occurred without interference or assistance on the part of the practitioner. *Twenty-three* such cases are enumerated in the 142 above given. (See Cases 37, 38, 40, 41, 42, 43, 44, 47, 50, 55, 57, 72, 76, 78, 79, 82, 132, 140, 143, 144, 146, 147, 148.)

Complete or Partial Inversion.—In *one hundred and eight* cases, the inversion is represented as *complete*, and in 18 as *partial*. By complete inversion is understood the passing of the body and fundus of the womb through the os uteri; it is not necessary that they should escape the os externum, and appear outside of the labia, for they may be concealed wholly within the vagina; but the neck should be inverted entirely to the os. *Partial inversion* is understood to be, where neither the body nor fundus has entirely escaped through the os uteri; and it may exist in different degrees, as simple depression or indentation; or, where the fundus has reached, perhaps, the centre of the uterine cavity; or, fallen to the mouth of the uterus, and is prevented from passing by the contraction of the os, or from want of sufficient propelling power; or, lastly, partly passed through the os, the body and fundus, perhaps, being strangulated by the neck of the uterus contracting forcibly upon the protruded part. That all these different grades or degrees of inversion must date from a preceding labour, if not owing to the dragging weight of a polypus, is almost self-evident; for it is not to be rationally supposed that such a process of

involution could commence without a cause, and no one can believe that after the placenta has been separated and the uterus normally contracted, that such event would be likely to happen. But we shall return to this point again presently.

Placenta Adherent.—This is stated to have occurred in 67 out of the 142 cases, viz., in Cases 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 26, 29, 31, 32, 33, 36, 37, 39, 40, 42, 43, 44, 48, 50, 51, 52, 53, 55, 59, 60, 63, 64, 66, 67, 70, 71, 72, 73, 74, 78, 81, 82, 86, 87, 88, 89, 101, 116, 129, 132, 133, 135, 136, 139, 140, 145, 147, 148. If we exclude the cases imperfectly reported, and only for the purpose of showing the results of extirpation, ligature, or excision, of which there are 40 cases, from our analysis, as not furnishing the necessary data, we have 67 out of 102 cases, in which it is stated that the placenta was adherent, and it is but fair to infer that such was the case in many of the others. This has a most important bearing on the causation of the accident, and sustains the conclusions already arrived at, regarding the influence of traction on the cord, or attempts at removing the after-birth.

Spontaneous Delivery of the Placenta.—In 14 cases of the 102, pretty fully reported, the placenta is stated to have come away spontaneously, or without manual assistance, viz., in Cases 17, 38, 47 (with slight assistance), 50, 58, 68, 76, 79, 129, 132, 134, 141, 143, 146, 147, 148. Several of these were associated with cases of rapid delivery, or where the pains were very strong and urgent towards the close. In 20 cases the labour is simply represented as *natural.*

Hemorrhage.—*Severe and copious hemorrhage* occurred in 49 out of 102 cases, viz., Cases 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 13, 25, 26, 29, 30, 31, 33, 36, 37, 38, 40, 44, 46, 49, 55, 56, 60, 62, 70, 71, 72, 74, 76, 82, 83, 84, 85, 86, 87, 88, 89, 100, 116, 129, 131, 132, 133, 135, 137, 139, 140, 142, 145, 147. *Moderate hemorrhage* occurred in 17 cases, viz., 14, 15, 16, 18, 19, 21, 23, 39, 47, 50, 51, 72, 79, 141, 143, 146, 148. There was an *absence of hemorrhage*, except on removal of the placenta, in eleven cases, viz., 33, 36, 37, 38, 40, 42, 43, 52, 57, 78, 82.

Inverted before Seen or Recognized.

Case 10	36 hours.	Case 15	10 days.	Case 21	8 months.	Case 12	2 yrs.
" 31	36 "	" 17	4 "	" 35	3 "	" 77	20 "
" 36	2 "	" 22	2 "	" 85	6 "	" 80	12 "
" 38	48 "	" 47	21 "	" 67	Several "	" 135	1 "
" 41	24 "	" 68	3 "	" 146	3 months.	" 136	1 "
" 79	48 "	" 69	16 "			" 137	1 "
						" 140	25 "

Case 27 had remained undetected several weeks; Case 66 three weeks; and Case 144 three weeks.

It seems hardly credible that in so many cases the nature of the malady

should have remained undetected for so long a time. It would seem that in very few was any vaginal examination made, although symptoms were present pointing to the probable existence of inversion. In the forty-second case, which came under my own observation and treatment, although the patient had been suffering for twenty-five years in consequence of the accident, and had been under the care of several practitioners of considerable repute, its nature had never been discovered, nor probably suspected, as no examination had been made for that purpose. The rule laid down by Denman, and so strongly insisted on by him, should never be disregarded, viz., that when, after the delivery of the placenta, if hemorrhage still continues, recurring at short intervals, attended or not with symptoms of nervous shock and great debility, a vaginal examination should at once be made, in order to determine whether inversion exists or not. Were this rule to be invariably observed, it would be the means not only of preventing much suffering, but of preserving many valuable lives.

Inverted Uterus mistaken for Polypus.—That the diagnosis of inverted uterus is not always easy, is evident from the fact that in seven cases it was mistaken for polypus, viz., in 95, 103, 114, 115, 116, 120, and 127. In Case 95, so much pain was caused by the ligature, that it gave rise to the suspicion that it was the uterus itself that was ligated, which turned out to be correct, as the organ came away with the ligature at the end of three weeks. The same occurred in Case 103, where the uterine tumour came away on the 21st day. Velpeau made the same mistake, which was corrected in a similar manner, although the patient died on the fifth day after the ligature was applied. (See Case 114.) Case 115 is interesting, from the fact that a recently inverted uterus, with the placenta still adherent, was mistaken by the attending accoucheur for a polypus, the placenta removed, and the uterus ligated, immediately after delivery, and returned within the vagina, July 6th. On the 1st of August the uterine tumour came away, and death followed on the 12th from peritonitis.

Polypus mistaken for Inverted Uterus.—Two such cases are included in our list, Nos. 128 and 129. The first is remarkable from the fact that the false diagnosis was made by Dr. Hugh Ley, and concurred in by Sir Charles Bell; while in the second, the same mistake was made by the distinguished writer on midwifery, Dr. Rigby. In this case the placenta had been separated spontaneously, and there was no hemorrhage.

Inversion caused by Polypus.—Several such cases have been recorded; we have given three, Nos. 34, 61, 90, and referred to several others. In the first, the tumour was forced into the vagina by the act of vomiting, where it remained three months before it appeared externally. In Case 61, a fibrous tumour had been excised a year previous; another formed, and by its weight inverted the womb. The sensibility or insensibility of the tumour would seem to be the most reliable means of diagnosis. It would appear that little difficulty could occur, where an examination is made soon

after the accident, and yet one such case is given. Our chief reliance in forming a diagnosis must, after all, be the history of the case, and the sensibility of the tumour. We are told by Sir C. M. Clarke, that in a case of polypus the os uteri encircles the tumour, and that in inversion of the womb the os uteri forms a part of the tumour itself. But in the chronic case of twenty-five years' standing which we have related (Case 142), the os uteri certainly encircled the tumour in the form of an elastic ring, or raised belt; we can readily imagine, however, that cases might occur where it would be very difficult to distinguish a polypus from an inverted uterus.

Uterus reposited.—The number of cases of *reposition of the uterus* is 51 out of 148 cases, viz., Cases 1, 7, 8, 9, 15, 18, 19, 23, 25, 28, 29, 32, 33, 36, 37, 39, 40, 41, 42, 43, 49, 53, 56, 57, 58, 64, 69, 70, 75, 74, 76, 78, 79, 80, 81, 82, 83, 84, 88, 86, 129, 132, 133, 137, 142, 143, 144, 145, 146, 147, 148.

The following table gives the results :—

Summary of 52 *Cases of Reposition of the Uterus.*

No.	Operator.	Age.	Time after the accident.	Result.
1	Robert Lee		Half an hour	Died from flooding.
7	C. D. Meigs		One hour	Recovered.
8	Betton		One hour	Died in one hour.
9	Denman		A few minutes	Recovered.
15	Teallier		Two days	Recovered.
18	Dewees		Half a minute	Recovered.
19	Dewees		Three hours	Recovered.
23	Lucas		Half an hour	Died in one hour.
25	Ramsbotham		Half an hour	Died in one hour.
28	Charles White		Half an hour	Recovered.
29	D. P. Bissell	24	Immediately	Recovered.
32	Williams		Immediately	Recovered.
33	Radford		Fifteen minutes	Recovered.
36	Radford		Two hours	Recovered.
37	Mann		Ten minutes	Recovered.
38	Radford		Supposed spontaneous, six months after	Recovered.
39	Radford		Immediately	Recovered.
40	Radford		Immediately	Recovered.
41	Radford		Twenty-four hours	Recovered.
42	Ashwell		Forty-five minutes	Recovered.
43	Ashwell		One hour	Recovered.
49	Smart		Three weeks	Recovered.
53	J. P. Gazzam		Ten days	Recovered.
56	Skae		Eleven days	Recovered.
57	E. Fisher	35	Immediately	Recovered.
58	Snackenbergh	27	Immediately	Recovered.
59	Coley		Seven years	Recovery.
69	G. Mendenhall	24	Sixteen days	Recovery.
70	Charles West	23	Three months	Recovery.
74	Burrows	24	One hour	Died in twenty minutes.
75	Burrows		Immediately	Recovered.
76	T. R. Mitchell		Immediately	Recovered.
78	Geo. Johnston	19	Immediately	Recovered.

Summary of 52 Cases of Reposition of the Uterus—continued.

No.	Operator.	Age.	Time after the accident.	Result.
79	E. P. Bennet		Thirty hours	Recovered.
80	Tyler Smith	18	Twelve years	Recovered.
81	Borham	25	One hour	Recovered.
82	Leonard	34	Immediately	Recovered.
83	Ellis		Immediately	Recovered.
84	J. A. Brady	23	Immediately	Recovered.
85	J. P. White	19	Six months	Died on third day.
86	J. P. White	30	Six months	Recovered.
87	J. C. Crosse	29	Immediately	Recovered.
132	W. Channing		In a few hours	Recovered.
133	W. Channing		Soon after	Recovered.
137	Borggreve		Third day	Recovered.
142	J. P. White	17	Fifteen years	Death 16 days after operation.
143	Geo. J. Fisher		Immediately	Recovered.
144	J. P. White		Three weeks	Recovered.
145	J. P. White		Immediately	Recovered.
146	H. A. Potter	20	Four months	Recovered.
147	A. Fisher		Immediately	Recovered.
148	Robert Smith		Immediately	Recovered.

Thus it appears that of the 52 cases in which the uterus was reposited, a fatal result followed in 7 only, one in 7.3; in two, from peritoneal inflammation, and the rest from hemorrhage and exhaustion. The latest period in which reduction of the womb was accomplished, was Case 144, reported by Prof. J. P. White, where fifteen years had elapsed since the occurrence of the inversion. The fatal result in this instance from peritonitis was regarded by him and his associates as accidental, and would not deter him from a similar attempt in a case of still longer standing. Although the operation would seem to be extremely hazardous so long a period after the occurrence of the accident, yet the success of Tyler Smith, in a case of twelve years' standing (Case 80), of Dr. Coley in one of seven years, and one of Charles West of three months' standing, will certainly justify the operation in cases perhaps still more chronic than this of Dr. White. It may, however, yet be found that extirpation of the womb by ligature is safer to the patient; but far more extensive statistics than we have at present are necessary to establish any rules regarding these operations.

Spontaneous Reduction.—Three cases in our list are represented as those of spontaneous reduction, viz: Cases 12, 13, and 38.

In Case 12, we are informed by Prof. Meigs that the inversion had existed for two years, and had taken place at the time of delivery, when she had a very profuse hemorrhage, so as to be supposed to be in danger of a fatal result; that her health gradually improved, although she remained subject to frequent attacks of hemorrhage, which greatly reduced her strength; that a physician was called in who detected the existence of inversion, and called in Dr. M. to verify the diagnosis. Dr. M. states that he found the womb projecting into the vagina, and believed it to have been

completely inverted. It was not much larger than the non-gravid womb; bled readily from pressure; was not very sensible to the touch. Dr. Moehring and Warrington, as well as Prof. Hodge, all examined the patient and agreed with Dr. M. in the diagnosis; attempts were made at its reduction, which proved unsuccessful. Four years after the patient became pregnant, and was attended by Dr. Warrington. The uterus was supposed to have been spontaneously reduced.

Cases of supposed spontaneous reduction have been recorded by different writers. Baudelocque states, that "the organ, after having been long inverted, has been seen to reduce itself spontaneously, in consequence of a violent accidental shock; and from a letter by Laroux, addressed to Louis, which is mentioned in *Daillez's Thesis*, the spontaneous reposition of the womb has been known to take place two months after the occurrence of the accident." (*Meigs' Trans. of Colombat*, p. 182.) If we admit the correctness of the diagnosis in this case, then we must, of course, acknowledge that an inverted womb may be spontaneously reduced. But while no one can question the eminent skill and experience of the reporter and his colleagues, we presume no one will claim for them infallibility. The history of the case is not altogether satisfactory, inasmuch as we are not informed in regard to the circumstances attending the inversion, how it happened, who attended the patient, &c. It seems not to have been suspected or detected for two years; was there not a mistake in the diagnosis, and a polypoid tumour, which afterwards sloughed off, as occasionally happens, mistaken for an inverted uterus? We have already related cases in which Sir Charles Bell, Hugh Ley, and Mr. Rigby, made a similar mistake, if this be one. The celebrated Paoli, in his *Researches and Observations on Surgery* (Leipsic, 1844), relates an instance in which, after repeated careful examinations, himself and five other surgeons could not agree in opinion as to the nature of the case, four supposing it to be an inversion of the uterus, whilst himself and Dr. Dampierre maintained it to be polypus. The woman died of internal inflammation, and the latter opinion was found to be the correct one. So M. Baudelocque states that he observed inversion of the uterus in a young girl of fifteen, who had never been pregnant. But A. Dubois states that, in his opinion, M. Baudelocque, in this instance, mistook a polypus for inversion of the uterus. So difficult, indeed, is the diagnosis in some of these cases that a mistake, even, is no impeachment of the knowledge, skill, or tact of the practitioner. Paoli (*loc. cit.*) has undertaken to show that the cases which have been published in various periodicals of late years, as instances of inverted uterus successfully extirpated by ligature, have been really cases of polypus of the uterus; and his reviewer (*Brit. and For. Med. Rev.*, July, 1846) remarks, that "his explanation of the nature of the disease appears to be the correct one, for we are much more ready to suppose an error of diagnosis than to believe that the uterus has been separated by ligature in a few days, with

little or no inconvenience to the patient, as we find related in more than one instance;" and this is said, too, in regard to cases in which the diagnosis could, with certainty, be verified or disproved, after the operation, by an examination of the part removed. We shall, however, see further on, that this remark of the reviewer is not in accordance with the existing facts of the case; we mean so far as regards the possibility of a safe removal of the uterus by ligature. But it is to the point as regards the acknowledged difficulty of diagnosis. With respect to the case of M. Baudelocque, above referred to, which he regarded as *congenital*, M. Lisfranc (*Clinical Surgery*, vol. iii.) admits the possibility of inversion, but considering distension and softening of the uterus from some cause essential to inversion, asks, Why may not the patient have been affected with retention of the catamenia, hydrometra, uterine hydatids, &c.? So, also, M. Colombat thinks that inversion probably existed, but that it took place in consequence of the distension of the parietes of the womb produced by retention of menses, an accumulation of serum, or the extrication of gases in the organ, and, subsequently, expelled suddenly. Must we admit, as established facts, the cases related by Puzos and Vigaroux, where females who had never borne children are said to have undergone inversion, the only cause being *obesity and the weight of the bowels resting on the womb?* However, if we must admit that the uterus can spontaneously invert itself, turning itself inside out, it is but right, perhaps, that we should also believe in its ability to turn itself back again!

In Case 13, also reported by Dr. Meigs, the same remarks will apply. The case was first seen by Dr. M. five weeks after delivery, and, though attended by a respectable practitioner, no inversion had been detected until two days before consultation was requested. She also became pregnant afterwards and gave birth to a living child. It seems to us more probable, by far, that a polypus had existed throughout the gestation, which is admitted as possible by Dr. M. in certain cases, than that the womb was inverted, and afterwards spontaneously reposited. The same supposition is probable in regard to Case 38, in which a large tumour was found by Dr. Radford in the vagina, forty-eight hours after delivery; but at the end of seven months could not be detected. We are told that the remains of the os uteri could be felt, but no regular aperture, the upper part of the vagina forming a complete "*cul de sac.*" There is no good reason for supposing, in this case, that there was any reinversion of the uterus, even supposing inversion to have existed, of which there is some doubt.[1]

Cases in which the Placenta was separated before Reposition.—The cases in which the adherent placenta is said to have been detached from the womb before reposition were, 7, 8, 9, 18, 19, 29, 31, 33, 37, 39, 42, 43, 44,

[1] For several supposed cases of spontaneous reposition see Gardien, vol. iii., and Dict. des Sci. Méd., vol. xlvii. p. 465.

50, 52, 53, 55, 56, 78, 79, 82, 129, 132, 133, 137, 142, 144, 145, 146, 147, 148, a total of thirty-one.

In several of these, unsuccessful attempts were made to reposit the womb before separating the placenta.

Cases in which the Placenta was not separated before Reposition.— These were only ten in number, viz: Cases 30, 32, 36, 40, 58, 63, 74, 75, 83, 84. These were cases in which the womb became inverted from strong expulsive pains, aided, in several instances, by traction on the cord and pressure over the hypogastric region, under the charge of regular physicians; where advantage was immediately taken of the open and relaxed state of the os uteri to return the organ and secundines, before any contraction whatever took place. A review of all the cases on record goes to show, what would be concluded, *a priori*, that the most favourable time for effecting a reduction is immediately after the occurrence of the accident; and, if this opportunity be embraced, there will rarely be much difficulty in repositing it even with the placenta attached. It seems somewhat strange that this should have been discussed by so many writers as an abstract question, for whether it be proper to remove it before reducing the displacement will depend altogether upon the circumstances of the case. Professional opinion is about equally divided on this point. But certainly the rule of Merriman is a very safe one when practicable, and, perhaps, the best to follow, viz: to reverse the organ without reference to the placenta when it can be done; but if impracticable to peel off the placenta, using every precaution against hemorrhage, and then to return the part without delay. Had this course been pursued in some of the cases above reported, it would doubtless have been the means of saving life by preventing the loss of blood, for time would have been allowed for the administration of stimulants, and for reaction to take place before the separation of the after-birth. It is true that its detachment will be more difficult after the replacement of the uterus, and that the replacement is rendered more difficult by the adhesion of the placenta; but we are only speaking of cases where its attachment does not prevent reposition of the organ. In the large majority of cases I do not suppose there is much to apprehend from hemorrhage if we proceed with promptitude and dispatch. Mr. Radford found, in all his cases, that no such fatal effect followed the separation of the placenta before its return, for, when entirely detached, he states that he found the uterine vessels as effectually restricted as if the organ was in its natural situation. The flooding he supposed to be due to a partial separation, and, as in other cases, to be checked by a total detachment.

There is another advantage in separating the placenta before reposition, which is, that we can compress the fundus and thus reduce its size, while, at the same time, we check the flooding by the compression made. Denman says: "If the placenta be partly separated, it would be proper to finish the separation before we attempt to replace the uterus; but if the placenta

should wholly adhere, it will be better to replace the uterus before we endeavour to separate the placenta." Carus observes: "If the inversion be quite recent, and the placenta still adhere to the uterus, it is best to return the uterus before separating the former; but if it be in a great measure detached, which is by far the most frequent occurrence, it is advisable to separate it completely before returning the uterus." Siebold also advises that the placenta should not be detached if the reduction can be accomplished without its removal; but if this be impossible, he advises its separation at once. Newnham, Blundell, Gooch, Burns, Clarke, and other standard writers, give the same advice. Those who take the opposite view do so on the ground that the diminution of the volume of the tumour, and the consequent facilitation of its reduction, far counterbalances the danger of hemorrhage.

Cases of Inverted Uterus Removed by Ligature.

No.	Operator.	Age.	Length of time after inversion.	Result.
62	Symonds	16	Nine months	Died on the 6th day.
67	Gooch		Two and a half yrs.	Recovered, lig. came away on 14th day.
71	C. G. Putnam	22	One year	Recovered, came away on 11th day.
72	C. G. Putnam	25	Eight months	Died on 9th day.
73	C. G. Putnam	23	One year	Recovered, lig. came away in 14 days.
88	J. G. Crosse	31	One month	Recovered, lig. came away in 12 days.
89	G. M. Esselman	32	Several months	Recovered, lig. came away in 15 days.
91	Windsor	39	Eighteen months	Recovered, lig. came away on 12th day.
92	Newnham	26	Three months	Recovered, lig. came away on 23d day.
93	Johnson		Over two years	Recovered.
94	Johnson		Many years	Recovered, "considerable time."
95	Johnson	20	Fourteen months	Recovered, came away in 3 weeks.
96	Johnson	27	Six years	Recovered, came away on 19th day.
97	Denman	60	Many years	Recovered, came away on 11th day.
98	A.H.M'Clintock	24	Five years	Recovered, came away on 28th day.
99	Johnson	24	Five years	Recovered.
100	Weber	37	Fifteen days	Recovered, cut away on 5th day.
101	Faivre	19	Few days	Recovered, came away on 17th day.
102	Martin		Two years	Recovered, came away on 19th day.
103	Martin		Six months	Recovered, came away on 21st day.
104	Martin	54		Recovered, came away on 20th day.
105	Bonepet		Three years	Recovered.
106	Blundell		Sixteen months	Recovered, came away on 11th day.
107	Blundell			Recovered.
108	Gooch		Two years	Recovered, came away on 14th day.
109	Crosse	31	One month	Recovered, came away on 8th day.
110	Gregson		Two years	Recovered, came away on 9th day.
111	H. Davies	27	Four months	Recovered, came away on 21st day.
112	Ramsbotham		Ten and a half mos.	Recovered.
113	Dubois			
114	Velpeau	36	Three months	Died on 5th day.
115	Boivin	24	Day of delivery	Died on 36th day.
130	W. Channing	22	About two years	Recovered, came away on 17th day.
134	W. Channing	24	One year	Recovered.
135	W. Channing	22	One year	Recovered, came away on 30th day.
136	W. Channing	35	One year	Died, from asthma, very low before operation.

Of the whole number, thirty-two, in which the uterus was removed by ligature, *only four died, or one in eight*, which is a rate of mortality very far below what we should have expected. Indeed, it is very evident that obstetrical writers generally have greatly overrated the danger of this operation. We have already seen that Paoli, supposing that the operation must necessarily be fatal, infers that there has been a mistake in the diagnosis in all such cases, and that, in fact, they have all been cases of *polypus uteri*. *Twelve per cent.* is about the average mortality of all cases treated in our large hospitals; in some it is much higher; and yet this is only the rate after this operation, and that, too, when in a majority of the cases the patients have been greatly exhausted and debilitated by constantly recurring hemorrhages and a general anæmic condition. The question whether this operation, or attempted reduction in chronic cases, is safer as a general rule, can only be determined by more extended experience and a larger number of well-managed cases. With our present light on the subject, it would seem that the preference should be given to ligation over reposition; our data, however, are not sufficient to warrant any positive conclusion. There are other circumstances to be taken into consideration in deciding this question, such as the age of the female, the general health, &c. In the case of a young woman, to whom a family is desirable, reposition should certainly be attempted, within the bounds of safety, if there is any such thing as defining them, which may well admit of doubt; but in females past the age of child-bearing, if the general health still suffers, ligation would doubtless be preferable. There is, however, very good reason to expect that if a female, labouring under inversion, passes that period of life when the menstrual flow usually ceases, we may expect a cessation of the hemorrhages and probably also of the sero-mucous discharges, which hitherto had kept her weak and miserable. Such was the case in the instance I have related (140), the patient, at present, enjoying a very comfortable state of health, her anæmic symptoms, &c., having disappeared. In performing the operation, it would seem also that the safety of the patient is much enhanced by gradually tightening the ligature, as she can bear it, and also relaxing it occasionally if the constitutional suffering is very great, and not wholly strangulating the uterine tumour at once, as has in some instances been practised. If the uterus be mistaken for a polypus, no harm would result, as the same treatment should be adopted for the latter, and we have seen that such mistakes have often been made even by the most experienced practitioners. Where death has resulted from ligation, it has been in consequence of peritoneal inflammation, one patient having died on the fifth day, one on the sixth, one on the fourteenth, and one on the thirty-sixth. The last was where a ligature was applied immediately after delivery (No. 115).

Cases of Inverted Uterus Removed by Excision.

No.	Operator.	Age.	Length of time since inverted.	Result.
77	E. Geddings	"Aged"	Twenty years	Recovered, ligature and excision.
90	Luytgaerens		Not stated	Recovered, caused by polypus.
116	Velpeau	24	Three years	Recovered.
117	Velpeau	35	Fifteen years	Died second day of peritonitis.
118	Lasserre	23	Eighteen months	Recovered, ligature and excision, well in 30 days.
119	Clarke	"Young"	Eleven months	Recovered, ligature and excision.
120	Baxter	37	Five weeks	Recovered, ligature and excision.
121	A. Hunter	"Young"	One month	Recovered in 10 days, ligature and excision.
122	Moss	41	Six years	Recovered, ligature and excision.
123	Velpeau	26	Eight months	Died from bleeding on third day.
124	C. H. Hawkins	26		Died on seventh day from disease of brain.
125	Forbes		Four months	Died from shock of operation.[1]
129	M'Clintock	22	Twelve months	Recovered, operated by *écrasement*.

Remarks.—Thus of the 14 cases of removal of the inverted uterus by incision, four died, or one in 3.5, which is a rate of mortality nearly three times as great as occurred after the application of the ligature, and yet death seems in several of the cases to have been accidental, rather than a necessary consequence of the operation. Case 118 died on the second day after the operation from peritoneal inflammation; Case 124 perished on the third day after from accidental bleeding; Case 125 died suddenly on the seventh day from disease of the brain; while Case 126 died from the shock of the operation, by asthenia, having been much reduced previous to the operation. In all the cases a strong ligature was previously applied; and to check the bleeding consequent on excision, it had to be drawn very tight; this would necessarily produce severe shock, which is avoided in the operation by ligation only, where the ligature is gradually tightened as the patient can bear it. It seems, therefore, a justifiable conclusion, that it is safer to remove an inverted uterus by ligature than by excision, or ligature and excision as hitherto practised.

In conclusion, it may be useful to sum up our results deduced from the preceding cases, and first in regard to the

Causes of Inversion.—We have seen that they are either located in the uterine system itself; or such as act on the outer surface of the organ, pressing or driving it down; or, lastly, such as act on its internal surface, drawing or pulling it down. The efficient or direct causes are the only real and active causes of the displacement; what are called the predisposing causes and conditions leave the uterus quiescent until the efficient causes determine an inversion. But, as in all other cases, the more numerous and strong the predisposing causes, the less powerful are the efficient required

[1] Mistaken for polypus.

to be for producing the accident, and *vice versa;* however strongly predisposed the patient may be, by the state of her constitution, or of the uterus and neighbouring parts, there must be a power either to push or draw down a part of the uterus, in order to commence inversion of its walls. A survey of the above cases will satisfy the impartial reader that a state of *adynamia uteri*, or *inertia*, ought to be regarded, in general, as the necessary condition for the first step in the displacement. We have seen that the stage of delivery in which inversion commences is constantly that of the removal of the uterine contents, or the principal part of them, and all accounts of its causation have reference to that stage. All the wise precautions which experienced men have enjoined for the prevention of the accident, *post partum*, relate to the avoidance of collapse, total or partial, of the uterus, and not to the dread of its contracting irregularly or too rapidly. Recent writers on this subject seem disposed to attribute much to irregular action of the uterus—the contraction of some portions of the organ while others are in a state of relaxation, collapse, or inertia. But those who advocate this theory admit that the portion of the uterine walls which is in this state of inertia is the seat of the commencement of inversion. No one, scarcely, who knows anything about the different stages of this displacement will claim that the commencement of the process is in the spot actively contracted. As the uterine fibres must be lengthened when depression occurs, and contraction shortens them, it seems to follow, as a matter of course, that the uterus cannot be contracted at the same time it descends and changes shape. And, moreover, the attachment of the placenta to some part of the internal surface of the *fundus uteri* is found to be so general in cases of inversion, that it may be regarded as almost essential to its production. In all probability several causes and circumstances must combine to produce the accident, such as have been already pointed out.

I am willing, however, to admit that in rare and exceptional cases inversion may be what is called *spontaneous:* that is, after it has once commenced it may go on to completion by the gradual organic contraction of the uterus itself. This view is sustained by several cases included in our list, already referred to under the appropriate head. Denman, many years ago, remarked that "if a disposition to an inversion be first given by the force used in pulling by the cord, it may be completed by the action of the uterus." And Dr. Crosse has observed that this distinction between the commencement of inversion and its further progress requires constantly to be kept in mind in considering what share the uterus itself has in contributing actively towards the displacement. I fully coincide with this intelligent writer in the opinion that the womb itself has no power to commence the displacement, or to cause simple depression, and I know no writer who understands the mechanism of inversion who holds to such an opinion. But when the process has once commenced, and the case goes on to what some writers call *introversion*, bringing the fundus within the grasp and influence of the unin-

verted body of the uterus, this organ will, by the natural powers called into action by its sensibility, regard the inverted part as an extraneous mass, and proceed to act upon it accordingly, endeavouring instinctively, as it were, by successive and suitable efforts of its muscular fibres, to propel it downwards, whilst the os and cervix will by consent, as in natural delivery, become dilated, a part of the uterus thus acting on the rest, and urging on the displacement till completed. Moreover, so long as the displacement progresses by descent, the abdominal expulsive efforts, recently in great activity, and readily awakened by the attending sensation of a fulness in the passage of a foreign substance requiring to be expelled, will be brought into action, and assist in the process so long as the patient is not in an insensible state. And, as Mr. Crosse remarks, where the inversion has proceeded to a certain extent, but its further progress by descent is prevented by the resistance of the parts closing the lower aperture of the pelvis, if it go on to total inversion by the remaining part of the organ rising as it inverts, this change must undoubtedly be effected by the uterus itself, and will take place in direct opposition to both *traction and nisus depressorius*. The part of the uterus which assists inversion by contraction must be that situated between the cervix and the *angle of inflexion*, which defines a circle, changing in its situation as the inversion progresses, and where the uterine walls, turning at an acute angle, cannot be capable of contracting, but must be considered in collapse.

Mr. Crosse notices especially the abdominal nisus as one of the efficient causes of inversion, assisting in every stage of the displacement, from the commencement to the external prolapse, aiding not only in the production of depression, but often being the principal power in determining the most rapid inversion. We have seen, in several of the cases quoted, that where the predisposing causes are all present, the patient delicate and relaxed, her position sitting or erect, or perhaps even recumbent, and the uterus inert, a violent expulsive effort, made when there is no uterine contraction, may expel the fœtus rapidly through a very relaxed os and vagina, and with it, or close upon it, the placenta and the uterus inverted, which may quickly descend some inches beyond the external labia. Here the abdominal nisus seems to be almost the only efficient cause, although the adherent placenta and relaxed uterus are perhaps essential to the occurrence of the accident. Baudelocque relates a case where he observed the uterine walls to be very thin, and he cautioned the patient against straining, or bearing down; but she, being deaf, mistook what was said for an encouragement to make greater efforts, which she did, and inversion followed. It is very evident that all sudden efforts in which the diaphragm and abdominal muscles are opponents, such as sneezing, coughing, &c., may not only help in causing inversion to begin, where favoring conditions are present, but are still more efficient in advancing the displacement when already commenced. We have seen in several of the cases above recorded that partial inversion, remaining

latent and unsuspected for some hours, or days perhaps, has been increased to complete collapse under efforts at defecation, coughing, &c., although, as Mr. Crosse has suggested, not unfrequently the sensation was delusive, and the real source of those sensations in the pelvis which induced expulsive efforts was the inversion already present and distending the uterine cavity or vagina. In all cases there can be no doubt whatever that the first step in the process took place at or near the time of delivery.

We have seen above that of the fifty-two cases in which the cause of inversion is assigned, thirty-eight are distinctly stated to have been cases occurring from traction on the cord, thus confirming the opinion of Ruysch, Ramsbotham, Robert Lee, Dewees, Colombat, &c. Where an inversion is first detected some days, weeks, months, or years after delivery, blame is very apt to attach to the attending physician, and the censure, implied or expressed, is, with very few exceptions, undoubtedly deserved; for, as Colombat remarks, "the most common cause of inversion consists in attempts to deliver the placenta immediately after the birth of the child, and before the womb has become contracted." (p. 176.) "Whenever this serious accident has happened," says Ramsbotham, "it may *generally* be looked upon as the consequence of improper treatment." (p. 318.) Although this writer admits, what is proved by several of our cases, that it may occur without any force having been applied to the funis.[1] It is evident that the inversion will more readily take place if the umbilical cord answer to the axis of the fundus, and even when there is no strong tendency to inversion, if the placenta be adherent, the accident may be produced mainly, perhaps exclusively, by traction on the cord. But in cases where the predisposing causes are numerous and strongly marked, and the constitution feeble and relaxed, the slightest traction on the funis may prove sufficient to commence the inversion, which will be hurried on in its progress by uterine contraction and abdominal efforts, until partial and then complete inversion is established, without any additional interference from without. Whatever tends to increase the impetus downwards in the axis of the uterine cavity, of the pelvis, or of the vagina, whether by propulsion, weight, or traction, must have its influence in increasing the displacement already begun. There is another circumstance to be taken into account, viz., that the placenta still attached to the fundus, by its bulk distending the lower part of the uterus or vagina, will, as a foreign substance, requiring to be expelled, call into action all the sympathizing powers of the frame for effecting this expulsion, and as the placenta is driven down, the fundus comes with it. The weight of the placenta has, doubtless, much to do in causing the accident.

It has been denied that too short a cord, or one twisted about the child's

[1] See Radford, in Dublin Journ. Med. Sci., vol. xii. pp. 25, 215; Rigby, Lib. of Med., vol. vi. p. 219; Barker, in Med. Gazette, London, April 5, 1844; Ruysch, Obs. Anat. Chirurg., Obs. x. p. 13; Denman, Midwifery, p. 421; Merriman, Mid.; Dewees, Midwifery, &c.

neck, can cause inversion, but we have compiled the history of several such cases; in others it caused depression, which afterwards resulted in inversion. In several cases, where there was a large pelvis and strong pains, the sudden delivery of the body of the fœtus, after expulsion of the head, resulted in inversion.

To understand clearly how irregular actions of the uterine fibres may invert the uterus, let us consider, for a moment, their arrangement. Those on the external surface form two broad fan-shaped muscular layers, spreading from the round ligaments over the fundus uteri. On the internal surface, there are three distinct sets of fibres; two of these surround the Fallopian tubes in a concentric arrangement. The third set pass circularly round the body of the uterus, and the outer fibres of the two former layers gradually pass into and intermix with those of the latter. The mass of fibres lying between the external and the internal layers have no determinate direction. Sir Charles Bell describes them as passing in a vertiginous direction from the fundus to the os uteri. No muscular fibres exist around the os. In regard to their normal action, the *external* muscular layer slowly contracts for some time before labour commences, and draws the uterus gradually down towards the pelvis, and keeping the fundus in a perpendicular position, and proper direction. This organic contraction is unattended with pain. In regard to the *internal* muscular fibres, when those surrounding the Fallopian tubes contract together, the fundus will be equally diminished on all sides, and this combined effect on the os uteri through the liquor amnii is, to dilate it equally in all directions; and when the circular fibres of the body and cervix contract, the uterus becomes more cylindrical, at the same time they close in the cervix. It is evident that if the uterine contents were removed, the simultaneous action of all these different sets of fibres would be to draw the uterine walls equally towards the centre of the cavity. The fundal muscles, then, chiefly effect the dilatation of the os uteri and the expulsion of the child, this joint action being in the direction of the os, through the liquor amnii. It is worthy of note that no circular fibres at the os have been detected; neither Hunter nor Sir Charles Bell could succeed in discovering any. The manner in which the os dilates, also, is opposed to the theory of their existence; for its expansion is generally very gradual, yielding slowly to the force applied, and not contracting rapidly and relaxing like a sphincter muscle. Besides, it appears, on minute inspection, to be composed of a firm, highly condensed tissue, which undergoes a gradual vital process of preparatory softening, as well as mechanical dilatation, during labour. Its occasional sudden relaxation in cases of rapid labour, no more proves its muscularity, than the sudden yielding of the perineum proves its muscular structure. In regard to the order observed by the uterus in the contractions which take place, a diversity of views has prevailed. But fortunately this is a point which we are able to ascertain experimentally, for in passing the hand into

the uterus, after delivery, to remove the placenta, on withdrawing it, we feel the fundus contracting, and as it is drawn still lower, the contractions continue from above downwards, and even where we introduce the finger to irritate the os, and in an attempt perhaps to dilate it, it is the fundus and not the os uteri which immediately contracts. This, then, is the normal mode of contraction in ordinary labour, and where everything goes on naturally. But we know that abnormal or irregular uterine contractions do sometimes occur, as in hour-glass contractions, &c., and it is proper to inquire, what they are, and under what circumstances they occur. It is not very unusual to find the placenta retained from irregular contraction of the uterine fibres; one of the fundal muscles perhaps contracting and not the other, or the fibres of the body of the uterus may draw it into a cylindrical shape, and leave the fundus relaxed; or, even, there may be a spasmodic contraction of the fibres of the cervix, forming a kind of stricture. These and other similar irregular contractions may be caused by a too rapid delivery, or the fundus may remain relaxed from deficient irritation, the child being withdrawn rapidly, or the muscles of the fundus may be contracted by frictions over the hypochondriac region to excite uterine action. In this case, a cup-like depression in the centre or on one side of the fundus may sometimes be observed, by careful examination with the hand. Irregular uterine contractions are, also, sometimes owing to coagula in the uterine cavity. Can such abnormal action of the uterine fibres cause, in any case, inversion of the organ? If the placenta be adherent, as happens in a great majority of cases of this accident, and we pull even slightly on the cord, for the purpose of ascertaining whether or not it is separated, there is great danger that irregular contraction may take place, and even frictions over the fundus in the hypogastric region, may cause the same result; the anterior portions of the uterine walls may contract, while the posterior, where the placenta is commonly attached, may remain relaxed, and the middle and lower part of the womb, with the cervix, may remain in the same relaxed condition. This irregular contraction is doubtless of very frequent occurrence under such circumstances, and although it generally rectifies itself, yet by grasping the uterus in the hand, or pressure on the hypochondrium, to produce general contraction of the organ, there is danger of its merging into partial, which may go on to general inversion. By careful examination in such cases, a cup-like depression may be found at the fundus, or on one of its sides, while the greater part of the organ is wholly relaxed, and if nothing be done to restore uniformity of contraction, it would be very apt to terminate in inversion. If the placenta become detached, and the irregular contractions continue, the fundus will continue to descend, while the placenta, acting as a foreign body, or as the fœtus, with the liquor amnii, stimulates to further action, mechanically distending the cervix, and in a few hours, perhaps a single hour, or sooner, the uterus is completely inverted. It is impossible, of course, to say, how long this

process of involution will continue, before complete inversion takes place; the probability is, judging from the history of reported cases, that it generally occurs within a short time, in a majority within a few hours, and that it is very rarely protracted beyond the second day. Our statistics show, that in nearly all cases, the inversion is effected at the very time the after-birth descends, we do not say separated, but protruded into or beyond the vagina. The placenta, it is true, may be extracted, and the partial inversion go on, in consequence of continued irregular contractions, the inverted fundus, acting as a placenta or any other foreign body to stimulate to still further contraction, till complete inversion be brought about. These, however, we repeat, are rare and exceptional cases. When they do occur, they argue great want of care and proper management on the part of the practitioner. The peculiar circumstances of the case should lead the accoucheur to suspect irregular contractions, and of course, lead to inquiry and examination into its existence, and if not too late, for the employment of precautionary measures, to the prompt and energetic use of means calculated to remove it.

The opinion has been recently advanced, that in some cases of inversion of the uterus, the change does not take place according to the order above described, as commencing at the fundus by indentation and depression, and this portion of the organ passing successively through the body, neck, and mouth; but, on the contrary, may commence at the neck, this part being first forced through the mouth, the remainder of the organ following. No one, I believe, claims that such a process of involution ever has been observed; it is simply inferred from the circumstances under which some inversions take place. It may well be doubted, however, whether there are any circumstances which give any plausibility whatever to such an hypothesis. It is acknowledged by those who maintain this theory, that most inversions take place in connection with, or immediately subsequent to, the removal or expulsion of the afterbirth, and next in order of frequency are the cases occurring soon after delivery. They admit that the accident generally happens unexpectedly and suddenly, taking the practitioner by surprise, and allowing him no opportunity to watch the steps of the process; and in regard to those cases which occur half an hour, an hour, or a day or two after delivery, it is conceded that they were favoured by relaxation of the organ after it had been duly contracted. If the process of involution commenced at the fundus, a depression would exist, and, if so, it is taken for granted that it would be discovered by the practitioner, who is supposed always to examine with a view of ascertaining whether such cup-like depression exist or not. But this will depend very much on the thickness of the abdominal parietes, and the degree of depression, as well as on the care bestowed in the examination to test such change if existing. It is to be presumed, however, if the practitioner's attention is not specially called to this point by the particular circumstances of the case, if present,

it would most likely escape his observation. Indeed, so rarely is it observed, that the supporter of this theory asserts that he had never met with any such depression in his extensive obstetric practice of more than fifty years, and that he had never heard a practitioner say that he had noticed such a phenomenon, and, moreover, that he had not the slightest apprehension that he had ever overlooked it. We must, however, be allowed to express the opinion, that as the practitioner usually lays his hand over the uterine region to ascertain whether the organ has contracted or not, he would not be likely to detect slight, or even a considerable degree of depression of the fundus, even if it existed. If it be asserted that the assigned manner of uterine inversion, beginning at the fundus, is "simply an inference drawn from facts positively ascertained in but few cases," it may be replied, that a theory founded on a few positive facts, should outweigh an hypothesis unsupported by any facts whatever. It is assumed, moreover, that in cases of complete atony or exhaustion of the uterus from severe labour, copious flooding, or any other cause, "it becomes soft and pliable as a wet ox-bladder, the blood flowing off, and there being nothing to prevent the uterine surfaces from collapsing upon one another, if any pressure from above is brought to bear upon it, it will be crushed into an irregularly folded mass, which must emerge from its narrower mouth in an order commencing immediately above the neck." Fortunately we have several cases on record which have a bearing on this point. Prof. Dewees, in his Midwifery, remarks as follows: "We find mention of a case of inversion by Dr. Loffler, in which the fundus of the uterus could not be retained after reposition, *owing to the loss of the tonic power of this organ, but again and again descended through the os uteri.* The fundus uteri having receded through the orifice of the uterus, I pursued it with my hand, which I kept in the uterus, waiting for the contraction of this organ. But after I had continued in this position about half an hour, without perceiving any contraction, I was obliged to withdraw my hand, when the fundus immediately descended, but was prevented passing through the orifice." (*Loc. cit.*, p. 472.) (See Case No. 57.) We might quote several similar cases, all going to prove that in cases of relaxation of the uterus, the whole organ being passive, it is the fundus which invariably descends first through the os, and not the cervix. It is believed there is not a case on record where the latter phenomenon has been observed. It is far safer to reason from facts positively known, than to assume data, resting solely on assumption. It is, moreover, extremely improbable that the impulsive force generally brought to bear in such cases would be adequate in such a complete atony of the womb as is supposed, to force the whole organ through the neck in the order presumed.

Another theory recently broached on this subject seems no less improbable, and is equally unsupported by any known facts. It assumes that there are two sets of uterine fibres, the longitudinal and the circular; that the

circular fibres encircle the os, and form a kind of sphincter muscle of the womb, to which the longitudinal muscles are attached, and that when the circular fibres are relaxed, the longitudinal ones, which represent so many columns resting on this circular band, as a foundation, contract, and having no support, they begin to yield from the bottom, evolution takes place, the neck doubles in upon itself, and passes through the os, the body follows, and finally the fundus, dragged down upon the body, pursues the same course till complete inversion is the result. This theory only differs from the last in one particular, viz: it supposes the inversion to be owing to active contraction of the muscular fibres beginning at the os, while the former assumes that the womb is wholly relaxed, and that the displacement is wholly due to its passive condition. As this hypothesis rests on no observed facts, is totally opposed to everything known regarding the accident, and as it assumes the existence of muscular fibres around the os, where they do not exist, it may be dismissed as unworthy any serious attempt at refutation.

ART. II.—*Experimental Researches relative to a supposed New Species of Upas.* By WILLIAM A. HAMMOND, M. D., Professor of Anatomy and Physiology in the University of Maryland.

AMONG the most deadly poisons which the ingenuity of man has devised for purposes of destruction, must be placed the two well-known species of upas employed by the natives of the Indian Archipelago. Whilst woorara, corroval, and vao are used by the aborigines of a portion of the western continent as death-dealing agents, the Javan possesses poisonous compounds, scarcely, if at all, inferior in virulence to those mentioned, and around which, for a long period, hung as much mystery as was ever attached to their American analogues.

In bringing to notice in the present memoir, what, for several reasons (which will hereafter be made apparent), I am disposed to regard as a new variety of upas, it may not be uninteresting or unprofitable to recapitulate briefly the progress and present state of our knowledge relative to the history, chemistry and physiology of the species of East Indian arrow-poisons hitherto described.

An arrow-poison in use among the natives of Macassar is mentioned by Sir Thomas Herbert,[1] whose work is the earliest on the subject to which I have been able to refer. According to Bennett,[2] it is mentioned by De Bry,[3] in a work published some years previously to that of Herbert.

[1] Relation of some Yeares Travaille, London, 1634, p. 199.
[2] Horsfield's Plantæ Javanicæ Rariores, p. 53.
[3] India Orientalis, Pars 8, p. 81.

Herport[1] and Saar[2] are also quoted by Bennett, as having written upon the subject in the years 1669 and 1672, and as stating that human ordure, taken internally, is an antidote to the effects of the poison in question. That some such idea as this was prevalent in Europe at the time, we are led to believe from the fact that the following question formed one of several on the subject proposed by the Royal Society,[3] for Suratte and other parts of the East Indies. "Whether it be true that the onely antidote hitherto knowne against the famous and fatal Macassar poison, is humane ordure taken inwardly, and what substance this poison is made of?"

Tavernier[4] also mentions this poison; speaking of the inhabitants of Macassar, he says:—

"These islanders are in the habit of poisoning their arms, and the most dangerous poison they employ is the juice of certain trees which grow on the island of Borneo, which they modify according to the effect, either rapid or slow, which they desire to produce. It is said that the king alone knows the secret of lessening the activity of this substance, and that he boasts of possessing some poison so powerful that there is no antidote in the world to its virulence. One of my brothers whom I had taken with me to the Indies, and who died there, was witness of a remarkable proof of the promptitude with which this poison produces its effects. An Englishman having, in the heat of passion, killed one of the subjects of the king of Macassar, and the prince having pardoned him, all the French, English, Dutch and Portuguese, who were then at Macassar, fearing that if the murderer remained unpunished, the natives would be revenged on them, prayed the king to inflict death upon the Englishman, to which he at length consented. The death of the Englishman having been agreed upon, the king said to my brother that he would not let him languish, and that, to demonstrate at the same time the extraordinary strength of his poison, he would himself shoot the prisoner with one of his arrows. These are little poisoned arrows which are shot from a blow-gun, and the king, to show at the same time his skill, asked my brother in what part of the body he wished him to shoot the criminal. My brother, who was very desirous of ascertaining whether that which the king had said relative to the prompt action of the poison were true or not, desired him to shoot the prisoner in the great toe of his right foot, which the king did with wonderful address. Two surgeons, one English and the other Dutch, were present to cut off the toe above the wound, but they could not do it so quickly, but that the poison more prompt had reached the heart, and the Englishman died at the same time.[5] All the kings and princes of the east seek with great care for the strongest poisons, and the king of Achen one day made Mr. Cook, Envoy of the General of Batavia, a present of fifteen or twenty of these poisoned arrows. He had possessed them for some years without making trial of them; but being one day with him, he shot several squirrels with them, all of which fell dead as soon as struck."

Cleyer[6] furnishes some information on the subject, which he obtained from

[1] Kurtze Oest Indianische Reise Beschreibung, 1669, p. 26.

[2] Oest Indianishe Funfzehn Jahrigr Kriegsdienste, pp. 46–47.

[3] Philosophical Transactions, vol. i. 1666, p. 417.

[4] Les six Voyages de Jean Baptiste Tavernier, etc. Paris, 1676, seconde partie, p. 438.

[5] The similarity of the incidents of the above relation, with those told by Fermin, as occurring with the woorara of Guiana, is so striking, as to lead to the supposition that this writer derived the materials of his account from Tavernier's story.

[6] De Telis deleteriô venenô infectis in Macassar et aliis Regnis Insulæ Celebes, etc., Miscellanea Curiosa Academiæ Naturæ Curiosum. Norimbergæ, 1699. Decuriæ ii. Ann. ter. 1684, p. 127 et seq.

the diary of Cornelius Spielman, Commander of the Dutch East India possessions.

According to this writer, there is no antidote to the poison used by the natives of Macassar, if it be recent. He, however, states the best remedy to be human excrement taken internally till vomiting be produced. He also states that the land in the vicinity of the trees from which the poison is derived is entirely barren, and that no plant of any kind is able to grow on it. The collectors of the poison use long bamboo rods with sharp points for the purpose of piercing the trees, and thus obtaining it without bringing it in contact with their bodies. The poison hardens in the canes, and is subsequently softened with water, in which an herb called *lampogang* has been infused.

Gervaise[1] asserts that the poisoned arrows retain their activity for twenty years, but that exposing them to smoke destroys their toxic power. He also declares that the action of these arrows is so rapid that death ensues immediately, and before any antidotes can be employed.

Among the plants sent from Luzoni by Father Kamel,[2] was a specimen of the tree from which the poison in question was asserted to be prepared. According to the description given, the Ipo or Hypo is of medium size, with small leaves, and of so virulent a character, that every living being coming under its shade dies, and that hence for some distance around each tree the bones of men and animals are found. The assertion of previous authors is repeated relative to the efficacy of human excrement as an antidote.

Rumphius[3] gives a long description of the tree, accompanied by several figures, together with a detailed account of the poison, its action, &c. He describes the tree under the name of *arbor toxicaria ipo*, giving the name upas as a synonym. This tree, he asserts, grows in Celebes, Sumatra, Borneo, and Bali. Most of the information he furnishes in regard to it and its poison was obtained from the natives, and, as is usual in such cases, is distorted by statements wholly devoid of truth.

Foersch,[4] in the latter part of the eighteenth century, gave circulation to the grossest falsehoods relative to the upas. Many authorities might be quoted, whose chief object seems to have been the denial of Foersch's statements, and the institution of others fully as questionable. I shall, however, pass them all over, and at once refer to writers whose accounts possess more truth than fiction.

The first writer who investigated the subject in a truly scientific spirit, was M. Leschenault.[5] Up to his researches, the two species of upas had

[1] Description Historique du Royaume de Macassar, Paris, 1688, p. 45.

[2] Ray's Historia Plantarum, London, 1704, tome iii. appendix, p. 87.

[3] Herbarium Amboinense, tom. ii. liber iii. p. 263.

[4] London Magazine, December, 1783, p. 511.

[5] Mémoire sur le strychnos tieute et l'antiaris toxicaria. Annales du Museum d'Histoire Naturelle, tome xvi. 1810, p. 459.

not been distinguished, either by origin or by their effects when introduced into the circulation of animals. A chemical analysis had not even been thought of. Leschenault showed conclusively that two species of poison differing essentially in composition and effects, were used by the natives of the Eastern Archipelago. With these they charge little arrows of bamboo, which are shot from blow-guns. The flesh of animals killed with these arrows, possesses no injurious quality, it being only necessary to remove the parts in immediate contact with the poison. One of these poisons is called upas antiar, the other upas tieute. This last is more violent in its action and is less known, as the Indians make a secret of its preparation, which is more complicated than that of the upas antiar.

According to Leschenault the upas tieute is prepared in the following manner: The bark of the root of a creeper, called by the natives tieuté, is boiled in water till a saturated infusion is obtained. This is reduced by continued evaporation to the consistence of a thick syrup. When this point is attained, two onions, a clove of garlic, a large pinch of pepper, two small pieces of the root of the *Kæmpheria gallenga*, three small pieces of ginger, and a single grain of *capsicum fructicosum* are added. This mixture being made, it is left for a short time longer on the fire and allowed to become clear. Three pounds of bark give about four ounces of extract. Leschenault charged two arrows with it, and after allowing them to become dry, pricked two chickens with them. One died in about a minute in violent convulsions, the other in a similar manner at the end of two minutes. Other animals were also killed with it, and MM. Delille and Magendie found that it had not lost its power at the end of four years. These experimenters also ascertained that the upas tieuté acts through the bloodvessels and absorbents upon the spinal cord, causing tetanus, asphyxia, and death.

The upas antiar, according to the same author, is prepared with the gum-resin which flows from the trunk of a very large tree, from incisions made for the purpose. The poison is made in an earthen vessel, without the aid of heat. To the gum-resin are added a few grains of capsicum, some pepper, garlic, and the roots of *Kæmpheria gallenga*, *maranta malaccensis*, and *costus arabicus*. Each one of these substances is bruised and gradually added, with the exception of the grains of capsicum, which are one by one rapidly thrust to the bottom of the vessel by means of a little wooden spit. Each grain occasions a slight action in the liquid, and rises to the surface. It is then withdrawn and others added, to the number of eight or ten, when the preparation is finished.[1]

[1] I am indebted to my friend, Dr. Joseph Carson, Professor of Materia Medica in the University of Pennsylvania, for the following botanical description of the plants yielding the two species of upas:—

"*Strychnos tieute*, Leschenault. *Gen. Char.*—Calix 45 parted; corolla tubular, with a spreading 4–5 cleft limb and a valvate æstivation; stamens 4–5, inserted

The effects of the upas antiar are not so violent as those produced by the upas tieute, and Leschenault has clearly pointed out the difference. A small water-fowl which he inoculated with it died in three minutes, having had no convulsion till the instant of expiration, whereas with the upas tieute strong tetanic convulsions were always produced. Magendie and Delille also demonstrated by the difference in their physiological effects the non-identity of the two poisons.

Brodie's[1] experiments with the upas antiar are of great interest. He found that when introduced into the circulation of animals, vomiting ensued, the heart beat feebly and irregularly, and there was great languor. Respiration, however, was perfect, and the cerebral functions were not disturbed. On opening the thorax before respiration had failed, the heart

into the throat of the corolla, which is either naked or bearded. Ovary 2-celled, with indefinite ovules attached to a central placenta; style 1; stigma capitate. Berry corticated, 1-celled, many-seeded, or by abortion 1-seeded; seeds nidulant, discoidal, albumen large, cartilaginous, almost divided into two plates, embryo with leafy cotyledons. Lindley.

"*Specif. Char.*—A large climbing shrub, with a thick woody root, 1–2 inches in diameter, and extending far under ground horizontally. Stem as much as 80–120 feet long, twining itself around the loftiest trees. The branches diverge at the extremity of the ramifications, and are opposite on the stem, being twisted and leafy. The leaves are opposite, oval, lanceolate, 3 nerved, entire, accuminated and glabrous. Hooks solitary opposite the leaves, thickest at the points; cymes oscillary, lax; corolla ⅗ths of an inch long, funnel-shaped, greenish-white, with the smell of jasmine. Fruit the size of a middling apple, each placed on a short thick flexicose peduncle, which is thickest at the point, globose, smooth, shining, at first brownish-yellow, afterwards bright pink.

"*Antiaris toxicaria*—Leschenault. This plant was placed by Lindley, in his Flora Medica, in the family uricaceæ; its alliances have subsequently appeared such as to warrant its removal to artocarpaceæ, a family which singularly enough alongside of this venomous plant embraces the edible bread-fruit. Its poisonous qualities still are allied to those of several species pertaining to the first named order.

"*Gen. Char.*—Monœcious, male flowers, on a convex fleshy receptable, scaly on the under side, and there attached by a stalk in the middle. Sepals 3–4, imbricated. Anthers 3–4, nearly sessile. Female flowers solitary, on a scaly peduncle. Calix none. Ovary 1-celled; ovule inverted, style 2-parted. Fruit a fleshy 1-seeded drupe. Embryo inverted, without albumen. Lindley, Flora Medica.

"*Spec. Char.*—A large sized tree, with a trunk marked by prominent excrescences. The leaves are alternate, oval, oblong, and either obtuse or pointed, unequally caudate, coriaceous, when young toothletted, petiolate and hairy. The male flowers are united in a common hemispherical, pedunculated and axillary fungus-like receptacle. They are green, downy, and separated by numerous imbricated scales. Female flowers are solitary, and almost sessile at the axilla of the leaves. Numerous imbricate scales cover the ovary, which is surmounted by two stigmata."

[1] Philosophical Transactions, Part I., 1811, p. 198.

was found to have ceased contracting, and was gorged with blood. From his investigations he concludes that:—

"The upas antiar, when introduced into a wound, produces death by rendering the heart insensible to the stimulus of the blood, and stopping the circulation. The heart beats feebly and irregularly before either the functions of the mind or the respiration appear to be affected. Respiration is performed even after the circulation has ceased, and the left side of the heart is found after death to contain scarlet blood, which never can be the case when the cause of death is the cessation of the functions of the brain or lungs."

Horsfield[1] has given a full account of these poisons, and performed many experiments with them. His account of the methods used in the manufacture of the antiar and tieute does not differ essentially from Leschenault's relation, and need not therefore be further considered. Horsfield performed two series of experiments; the first, with the antiar, were instituted upon numerous mammals and birds. The symptoms observed were, in general, vomiting, convulsions, evacuation of feces, and death, in periods varying from a few minutes to several hours. The experiments of the second series were performed with the tieute upon mammals and birds. This poison was found to be much more virulent than the antiar. It produced convulsive twitchings, rigidity of the muscles, great exhaustion, and death. From post-mortem examinations, he concluded that the action of the antiar is directed to the viscera of the thorax and abdomen, and that of the tieute to the brain and dura mater.

It cannot be said that Horsfield's experiments are such as to throw much light upon the physiological action of these substances. He, however, gives some interesting details relative to the plants from which they are obtained. From these it appears that the antiar or anchar is one of the largest trees of the Archipelago, rising to the height of sixty or eighty feet before sending off a branch. It proves hurtful to no plant around it, and creepers and parasitical plants wind around it in great profusion. The poison is situated in the bark, from which, when cut, it flows in the form of a milky sap. In this state it is as deleterious as when mixed with extraneous substances, as black pepper, ginger, &c. When applied to the skin it produces intolerable pain and itching with a kind of herpetic eruption.

The tieute chetik or tschetic, according to the same author, is only found in Java.

Blume[2] states that the antiaris toxicaria grows not only in Java, but also in the neighbouring islands, and in most of the groups of the Indian Ocean. By the inhabitants it is called ipo, hypo, or upas, words which, in the different Malay dialects, signify poison, and which are also applied to the strychnos tieute or bohon upas (poison tree). In Java it is specially designated by the names antchar, antzchar, or antjar.

[1] Thomsons's Annals of Philosophy, vol. ix. 1817, pp. 202, 265.

[2] Rhumphia, t. i. p. 36 *et seq.* See also tab. 22 and 23.

Blume also states that the poison is of a volatile nature, and that the deleterious principle is lost unless it is carefully preserved from contact with the atmosphere.

According to the same author, the antiar does not act with equal promptness on all animals, dogs, for example, being less affected by it than monkeys, cats, or bats. Certain birds die almost at the instant of inoculation, whilst chickens are but slightly affected. It is less active when introduced into the stomach than when injected directly into the circulation, and in the former case induces vomiting. It is further asserted that emetics are the best antidote.

The chemical examination of the ticute and the antiar instituted by MM. Pelletier and Caventou,[1] gave results of considerable importance. From the investigations of these chemists it is conclusively shown that the active principle of the upas ticute is strychnia united to an acid, probably the igasuric, whilst the upas antiar contains a bitter matter, soluble in alcohol and in water, and possessing the same toxical properties (though in much greater degree), as the antiar in substance. To this principle the name of *antiarin* is given.

Mulder[2] has also analyzed the antiar. A specimen brought to him from Java by Blume he found to possess the following constitution :—

Vegetable albumen	16.14
Gum	12.34
Resin	20.93
Myricin	7.02
Antiarin	3.56
Sugar	6.31
Extractive	33.70

Antiarin can be obtained by boiling the upas antiar in alcohol. On cooling, the antiarin crystallizes in silvery inodorous leaflets of mother-of-pearl lustre, which are soluble in 250 parts water, 70 parts alcohol, and in 2792 parts ether, melt at 220 C., and are not volatile.

No investigations of any importance were instituted subsequently to the foregoing with either species of upas, till a short time since Prof. Kölliker[3] communicated the results of some initiatory researches relative to the physiological action of the upas antiar.

The specimens of the poison employed by Kölliker were obtained from Drs. Christison and Horsfield, and originally came from Borneo and Java. That from the latter locality, though collected in the beginning of the present century, was found to possess its full toxical power.

[1] Examen Chimique des Upas, Annales de Chimie et de Physique, t. xxvi. p. 44.

[2] Traité de Chimie de Berzelius, t. iii. p. 869.

[3] Einige Bemerkungen über die Wirkung des Upas Antiar, Verhandlungen der Würtzburger Phys. Med. Gesellschaft, Bande viii. 1857. See also Proceedings of the Royal Society, December, 1857.

The symptoms which followed the introduction of the antiar into the circulation of frogs were as follows:—

In the first place, the voluntary movements became less energetic, and at length entirely ceased, in an average period of from 30 to 40 minutes after the inoculation. Reflex movements could be excited for a short time subsequently, but they were soon lost (in from 50 to 60 minutes from the commencement), and the animals died without the least trace of convulsion or tetanic spasm. Upon opening the frogs it was invariably found that the heart had ceased to beat. The auricles were dilated; the ventricle contracted, corrugated, and generally red, as if blood had been extravasated into its tissue. The other organs, especially the lungs, liver, stomach, intestines, and kidneys, were found in an hyperæmic condition. The excitability of the nerves was still present, but in slight degree, and was generally abolished in the second hour after the introduction of the poison. The irritability of the muscles to galvanism was lost a short time after that of the nerves. The *rigor mortis* commenced in the sixth hour, and was generally well established at the eighteenth hour.

It was definitely ascertained from these experiments, that the heart of frogs inoculated with antiar ceases to beat in from 5 to 10 minutes, and that the ventricle ceases acting before the auricles. The first action of the antiar is therefore to paralyze the heart. By further investigation, Kölliker ascertained that the abolition of voluntary and reflex movements was entirely due to the stoppage of the heart's action, for by cutting out the heart or putting a ligature around the base of it, as had been previously done by other observers, it was found that the voluntary movements ceased in from 30 to 60 minutes, and the reflex actions in from 1 to 2 hours. The irritability of the nerves and muscles was not thus abolished, consequently the antiar exercised a direct action on these organs.

From a third series of experiments Kölliker arrived at the conclusion, that the voluntary muscles are paralyzed next after the heart, and the nervous trunks some time subsequently. The antiar, therefore, unlike the ordinary woorara, acts principally upon the muscular system, and in confirmation of this conclusion, it was found that the muscles and heart of frogs poisoned with this latter substance lost their irritability in a short time if antiar was introduced into a wound some time after the woorara.

As the results of his researches, Kölliker deduces the following conclusions:—

"1. The antiar is a paralyzing poison.

"2. It paralyzes in the first instance the heart, acting with great rapidity upon this organ.

"3. The speedy disappearance of voluntary and reflex movements is a direct consequence of the paralysis of the heart, at least the same results ensue upon extirpation or ligature of this organ.

"4. The antiar in the second instance paralyzes the voluntary muscles.

"5. In the third place, it subsequently paralyzes the great nervous trunks.

"6. In frogs poisoned with woorara the antiar exerts its peculiar effect upon the heart and voluntary muscles.

"7. From the foregoing it would appear that the antiar is principally a poison to the muscles."[1]

[1] The great similarity existing between the action of the antiar, as above described by Kölliker, and that of corroval and vao, is very striking. See a paper on these latter poisons, by Dr. S. Weir Mitchell, of Philadelphia, and myself, entitled

The researches of Pelikan,[1] relative to the action of the antiar, tend to the same general conclusions as those of Kölliker, and from the investigations of this observer it would appear that the alcoholic extract of the leaves and stalks of the *Tanghinia venenifera* produces analogous results. The main fact derived from his experiments being that both these poisons act directly upon the heart, arresting the action of this organ, but causing no tetanic spasms.

From the various examinations heretofore instituted, it would appear, therefore, to be definitely settled that the upas ticute causes tetanoid convulsions, but does not act primarily upon the heart, its action being in many respects similar to that of strychnia, which substance enters into its composition, whilst the upas antiar, like corroval, vao, and tanghinia, causes death by directly arresting the motions of the heart, but inducing no tetanic convulsions. The following investigations will show how very complicated is the action of the upas in my possession, and how essentially it differs from any other poison hitherto described.

The upas used in the ensuing experiments was obtained in 1848, by Dr. W. S. W. Ruschenberger, of the United States Navy, at Singapore. He knows nothing of its history before it came into his possession. I must express my sincere appreciation of his kindness in placing it at my disposal.

When the poison in question was given to me it was contained in a small vial, tightly corked and sealed, which had not been opened since it was procured. The contents were of semifluid consistence, of a dirty green colour with a slight yellowish tinge, and evolved a very decided odour of human feces. A slight sediment which had been deposited consisted of amorphous organic matter, with a few vegetable cells and other structures of similar character.

Desirous, in the first place, of ascertaining its physiological effects upon the animal organism, I was unable, from the small quantity in my possession, to subject it to so thorough a chemical examination as I desired. My investigations in this latter direction were therefore limited to one point—the determination of the presence or absence of strychnia.

For this purpose I proceeded according to the method of M. Stas for the detection of the alkaloids.

Twenty grains of the poison were diluted with about a drachm of water. A few minims of alcohol and five minims of acetic acid were next added, and the mixture digested in the water-bath for an hour and a half, being frequently stirred. The mixture was then filtered, and the residue washed with dilute alcohol till all soluble matter was extracted. The liquid was then evaporated nearly to dryness in the water-bath, and the residue treated with

"Experimental Researches relative to Corroval and Vao, two new varieties of Woorara, the South American Arrow-Poison," American Journal of the Medical Sciences, July, 1859. At the time these investigations were made we had not seen Prof. Kölliker's observations on the antiar.

[1] Beiträge zür gerichtlichen Medizin, &c., 1858, pp. 164-169.

boiling alcohol and filtered. The alcoholic solution was again evaporated, and the residue digested with a small quantity of distilled water. The solution was filtered, and potash added till the reaction became alkaline. The mixture was then shaken in a stoppered test-tube with twice its volume of rectified ether. The ethereal solution was then decanted, and allowed to evaporate spontaneously.

In this manner 4.75 grains, equal to 23.75 per cent., of a substance possessing an intensely bitter taste, but uncrystallizable, were obtained. Tested with bichromate of potash and sulphuric acid, a deep blue colour was produced, but this was not succeeded by the characteristic play of colours which strychnia produces; and although less than the fourth of a grain caused violent tetanic spasms and death in a large frog, I suspected that the substance obtained was not pure strychnia. I therefore treated it with pure distilled water, and found that to a considerable extent it was soluble in this menstruum. Of 4 grains thus acted upon, the residue amounted to 2.87 grains. This was crystallizable, as strychnia, and exhibited with bichromate of potash and sulphuric acid the same reactions as this substance. It also caused tetanus and death in a frog, when inserted in very minute quantity under the skin. The aqueous solution last obtained was preserved. It will be again referred to when the physiological experiments are detailed.

My impression from the results of this examination, and from the few experiments performed, was that the poisonous substance was the upas tiente. The place whence it was obtained, and the fact that it contained strychnia, were, I thought, sufficient to establish its identity. The more thorough physiological examination instituted, which I now proceed to detail, convinced me of my error.

In order to facilitate the introduction of the poison into the circulation of animals, twenty grains were diluted with two fluidrachms of distilled water, a few drops of alcohol being added to insure against decomposition. This was the strength always employed, unless otherwise stated.

The more obvious effects of the poison are shown in the following experiments :—

Exp. Ten drops of the diluted poison were inserted under the skin of a large cat. During the first two minutes no symptom worthy of note was observed. Then slight twitchings of the muscles of the back were perceived, and immediately afterwards the animal vomited. At the end of four and a half minutes the cat fell, and was tetanically convulsed. Death ensued immediately, in the midst of violent and general tetanic spasms. Circumstances prevented me making any further examinations in this case, and it is only adduced as being among the first of the series of experiments, and as showing with what great power the poison acted.

Taking, however, into consideration the results of the chemical examination, and the extreme rapidity with which death followed the first convulsions in the experiment just cited, I was strongly of the opinion that some other cause than tetanus was active in producing the ultimate result. I therefore proceeded as follows :—

Exp. Three drops of the poison were inserted under the skin of the back of a large frog, and the chest immediately laid open, in order to observe the action of the heart. At the time, this organ pulsated fifty times per minute, and with great regularity. After the fourth minute the movements became more irregular,

the ventricle contracted to less than half its normal size, lost its deep colour, and finally ceased to beat, five minutes after the inoculation. The auricles stopped beating a few seconds subsequently. The frog, however, was still possessed of a good deal of muscular vigor, and was able to leap several feet. The animal was placed under a bell-glass, and carefully observed. Seven minutes after the movements of the heart were arrested there were slight convulsive actions of the abdominal muscles, and in less than a minute afterwards the frog was in violent tetanic spasms. These were excited by the least irritation. They continued for nearly half an hour with undiminished violence, and then gradually ceased. Fifty-five minutes after the inoculation the animal was dead to all excitation.

Exp. Ten drops of the poison were introduced under the skin of a medium-sized cat. At the end of seven and a half minutes the animal had a slight spasm and vomited. In two minutes afterwards it fell, with general tetanic convulsions, and expired. The chest was immediately opened, and the heart was found to have ceased acting.

These experiments were frequently repeated, and always with analogous results. They lead inevitably to the conclusion that the poison used, besides inducing tetanus, acts directly upon the heart. In fact, in frogs its first effect is to arrest the action of this organ, and it is not till some minutes have subsequently elapsed that the tetanus supervenes. It is probable that the same is the case in mammals, but, owing to the rapidity with which the poison acts in warm-blooded animals, it is difficult to arrive at a very definite conclusion on this point. The following experiment, which was several times repeated with like results, shows, at any rate, that the heart is affected before any spasms occur:—

Exp. Fifteen drops of the poison were inserted into the thigh of a small dog. The chest was immediately opened, artificial respiration being kept up by means of the apparatus described in the memoir on corroval and vao. The action of the heart was not more than ordinarily disturbed till about four minutes had elapsed. Portions of the left ventricle then became paralzyed, and the pulsations of the organ became much slower. Up to this period no convulsions had occurred; but shortly after the appearance of the phenomena above referred to, a slight tetanic spasm of the whole body took place. In less than a minute subsequently—about six minutes after the inoculation—the heart suddenly stopped, simultaneously general tetanic convulsions occurred, and the animal was dead.

It may therefore be concluded that the poison referred to in this memoir, like the upas antiar, corroval, vao, and tanghin, acts primarily upon the heart, but, unlike these agents, acts also upon the spinal cord, causing tetanic convulsions. Its action would therefore appear to be a compound of that of the two known species of upas, and it might be supposed that the poison in my possession was a simple mixture of these substances. In order to discuss this point properly, it will be necessary to return to the chemical examination made.

It will be recollected that 20 grains of the poison yielded 4.75 grains of an exceedingly bitter substance, possessing, in some respects, the characteristics of strychnia, but yet differing very materially from it in several essential particulars, and that this matter was further separated into strychnia and a substance soluble in water.

The solution of this latter ingredient, on being carefully evaporated to dryness in the water-bath, left a light yellow substance, extremely hygro-

scopic, and possessing a somewhat astringent and slightly bitter taste, the latter being probably due to traces of strychnia. It was slightly soluble in alcohol, and very much so in ether, differing, therefore, in these respects, from antiarin. It was also readily dissolved by chloroform. It was altogether uncrystallizable, another point of difference from antiarin.

In physiological properties it appeared to resemble this latter substance. A small portion, not larger than the head of a pin, arrested the action of the heart of a large frog in about four minutes. A pigeon, inoculated under the wing, fell dead in two minutes. On opening the chest, the heart was found hard and rigid. In neither case was there the least appearance of tetanic or other convulsions.

The quantity of this substance becoming exhausted, I was unable to experiment further with it. The chemical properties were certainly not those of antiarin, and therefore the idea that the poison to which this memoir relates is a mixture of the upas antiar and the upas tieute is not tenable.

We have already seen that the primary action of the poison under consideration is upon the heart, and that secondarily it acts upon the spinal cord, producing tetanus. That this last mentioned result is not a consequence of the arrest of the heart's action will be admitted by all who are familiar with the results which follow ligature or removal of this organ in frogs. In such cases there are no convulsions, the animal dying from complete abolition of all nervous action. From numerous experiments which I have performed with reference to this point, I have satisfied myself that after placing a ligature around the large vessels at the base of the heart, on extirpating the organ, the voluntary movements entirely cease in from twenty to fifty minutes, and the reflex in from one to two hours. My experiments in this respect are therefore entirely in accordance with those of Kölliker already referred to.

In an elaborate memoir lately published by MM. Martin-Magron and Buisson, it is attempted to be shown that both woorara and strychnia cause tetanus, and act upon the nervous system without the agency of the circulation.[1] It would be easy to show the numerous fallacies into which these physiologists have fallen, but such is not at present my intention. That the poison now under notice does not act but through the medium of the blood, the following experiments abundantly show :—

Exp. A ligature was placed around the base of the heart of a large frog at 1.45; at 1.47 the animal was inoculated in the left posterior extremity with five drops of the solution of upas ; at 2.15 voluntary movements abolished ; at 2.55 no reflex actions could be excited. Nervous and muscular irritability remained four or five hours longer. At no time was there the least appearance of spasm of any kind, though the animal was carefully observed till 9 o'clock.

Exp. The entire heart was cut out of a large frog at 4.15, and the blood

[1] Action Comparée de l'Extrait de Noix Vomique et du Curare. Journal de Physiologie de M. Brown-Séquard, numéros vii. viii. ix. 1859–60.

allowed freely to escape; at 4.18 the animal was inoculated with the poison in the left posterior extremity; at 4.53 voluntary motions were abolished; and at 5.38 reflex movements could no longer be excited. The animal was carefully observed till 11 o'clock, but no convulsions of any kind occurred.

Even if such actions had supervened, I do not think they would have afforded any proof that the poison was not conveyed to the spinal cord through the medium of the blood, for, as is well known, the capillary circulation persists in frogs with more or less activity for some time after ligation or extirpation of the heart. I have ascertained, that six hours subsequently to either of these operations a persistent current in one direction only is present in the capillaries of the web, and that oscillatory movements continue for several hours afterwards. If, therefore, a poison be applied to the spinal cord, or its membranes, or even in its vicinity, it need excite no surprise if the peculiar effects of the agent are manifested. I have frequently repeated the chief experiments of MM. Martin-Magron and Buisson, and though I have generally obtained their results, I think a different interpretation of them is required. At the same time I am not prepared to deny that poisons may act by imbibition in the manner described by the physiologists above mentioned, but so long as it can be demonstrated that the blood is in motion in the capillaries, it appears more philosophical to admit its influence in conveying the poison than to ascribe the transportation to another force. The following experiments will, I think, show that the power of imbibition is not so great as MM. Martin-Magron and Buisson contend.

Exp. A large frog was selected, and a ligature was placed around the large vessels of the lower part of the abdomen. The animal was then so arranged that both posterior extremities, as high as the middle of the legs, were kept immersed in a strong solution of the upas. At the end of an hour the chest was opened, and the heart was found to be actively pulsating. Six hours were suffered to elapse—the animal being retained in the same condition—and no symptoms of poisoning having been induced it was released. The ligature was now removed from the vessels, and in the space of three minutes the heart had ceased to beat. Tetanus supervened a few minutes subsequently.

Exp. The hind legs of a large frog were immersed in the same solution used in the foregoing experiment, and in a similar manner, except that no ligature was applied to the vessels, and that all the tissues but the vessels were entirely divided at about the middle of the thighs. The chest was then opened. The heart ceased to act in a little more than six minutes after the immersion, and after about eleven minutes had elapsed, the animal was in violent tetanic spasms.

As the objects of the present memoir relate solely to the action of the upas in my possession, it would be out of place to enter into any discussion of the investigations of MM. Martin-Magron, and Buisson, but the two experiments above cited are at least indicative of the fact that the poison used exerted its influence solely through the circulation, and the other facts stated are, I think, strongly suggestive of errors into which these observers have fallen. At some future time I purpose considering their researches more at length. I would only say further, therefore, that

the time the frogs used by these experimenters survived extirpation or ligature of the heart is altogether unprecedented, no observer, to my knowledge, ever having witnessed such lengthened vitality as that asserted by MM. Martin-Magron, and Buisson, to have attended their experiments under the above named circumstances.

In its effects upon the nervous system, the poison under consideration is peculiar. Owing to the rapidity with which tetanus supervenes, it is impossible to determine when the voluntary movements entirely cease, even in frogs and other cold-blooded animals. In mammals and birds, these actions are of course very soon lost. In regard to the reflex actions, it is hardly necessary to state that they are greatly intensified. They also are manifested for a much longer period than in animals poisoned with corroval or vao, or in which the circulation has been arrested by ligation or excision of the heart. The following experiment, which is only one of many which were performed with reference to this point, is adduced.

Exp. A large frog was inoculated with the solution of the poison under the skin of the back at 11 A. M. At 11.6 the heart stopped. The animal was capable of voluntary actions till 11.13, when tetanus of a very violent character occurred. This condition was present in all its primary intensity till 12.20, when it began to exhibit a less violent character. At 2.30 general spasms were induced by the galvanic irritation of a posterior extremity, and even at 4 o'clock, under similar excitation, there were slight reflex actions caused in the muscles of the anterior extremities.

It is extremely probable that like corroval in its relations to strychnia, the two poisonous principles of the upas are, to a certain extent, antagonistic, and I regret again that I had not sufficient of the heart-paralyzing agent to admit of my establishing this point as a certainty.

In its effects upon nervous and muscular irritability, the poison under consideration is more closely allied to strychnia than to corroval or antiar, *i. e.*, the action of the strychnia is predominant over that of the other principle, and consequently the nerves and muscles retain their excitability for a longer period than when either of the two above named substances is introduced into the circulation. Without giving the details of the experiments, I would state as the results of my investigations, that in frogs the nerves retain their irritability for about five hours, and the muscles for about an hour longer.

When taken into the stomach, the two principal actions of the poison are reversed in the order of occurrence. Tetanus first occurs, and it is not for some time afterward that the heart stops beating.

Exp. Ten drops of the solution of the poison were introduced through a tube into the stomach of a large frog at 10.20. Tetanic spasms commenced at 10.32, and at 10.40 were at their height. The chest was opened, and the heart was found to be actively pulsating. It continued to beat till 10.58, when it stopped.

Exp. Twenty-five drops of the solution were injected through a tube into the stomach of a small dog. At 12.5 the chest was opened and artificial respiration instituted. Tetanus supervened at 12.13. The heart continued acting till 12.28, when it stopped.

I found, by subsequent investigation, that it was possible to entirely prevent the paralysis of the heart by washing out the stomach a few minutes after the introduction of the poison. This is shown by the following experiment:—

Exp. Ten drops of the solution of the poison were placed in the stomach of a frog at 2.15. At 2.20, before tetanic spasms had become developed, the stomach of the animal was inverted, and thoroughly washed with tepid water. It was then returned to its normal position. During the operation, tetanus supervened. The chest of the animal was opened, and the heart was found pulsating actively. It continued beating for several hours, during the whole of which time the convulsions were excited on the least irritation.

Introduced into the rectum, the effects ensue in the same sequence as when the poison is placed in the stomach, but with somewhat greater rapidity. It may, therefore, be concluded that the mucous membrane of the alimentary canal is a better endosmometer for the solution of strychnia, than for that of the heart paralyzing agent.

Placed upon the skin of frogs, the poison produces similar effects to those which follow its insertion under the skin, and with almost as much rapidity. It is, perhaps, hardly necessary to cite any of the numerous experiments which were performed with reference to this point.

It was intended to have made these investigations much more extensive, but the limited quantity of the poison at my disposal prevented me doing as complete justice to the subject as I desired. From the researches, so far as they extend, I think it may be fairly concluded that the poisonous substance to which they relate is altogether different from any one species of poison heretofore described, and that whilst in many respects it is similar in physiological effects to both the upas antiar and the upas tieute in their joint actions, there is much reason for hesitating to regard it as a compound of these substances.

Art. III. *Aromatic Sulphuric Acid in the Treatment of Tapeworm.*

By B. Darrach, M. D., Quincy, Ill.

Tænia has pre-eminently its fashionable remedies. Kousso, after being lauded as a sovereign cure, and sold at extravagant prices, has been laid aside, like many of its predecessors. Emulsion of pumpkin-seeds, I apprehend, is destined to the same fate. I have seen it fail in a case, where a year previously it had expelled twenty-four feet of the parasite, and where turpentine was subsequently used with success. Will the profession then pardon me if I bring another remedy to their notice, that it may have a trial which can alone test its value. I am indebted for the facts to my fellow-practitioner, Dr. Adams Nichols, and publish them with his concurrence.

On the 5th of February last, the doctor was called to see Mr. P——, farmer, aged about 35, native of this vicinity, and living a few miles from town. He had been suffering for three months with vague pains in different parts of his body; was debilitated and emaciated; had some cough; a slight expectoration, and obstinate constipation. When I saw him for the doctor on the 10th, he had the appearance of a phthisical patient. On Dr. Nichols' second visit the patient exhibited a discharge from his bowels, which had alarmed him; to use his own expression, "his bowels were all coming away from him." Upon inspection, the discharge was found to be a mass of tapeworm several feet in length. He was ordered aromatic sulph. acid ℥j, water Oiss; to drink of it as often as he could until he had used it all. On the third day he passed about a pint of the worm in fragments, and apparently partly digested. The dose was repeated on the fourth day as a precaution, but without expelling any more of the animal.

Feb. 24. Reported himself: bowels regular, cough gone, appetite good, gaining flesh, and no symptoms of the worm.

Since the above date he has entirely regained his flesh and strength, and has perceived no indication of a return of the parasite.

The above remedy was brought to the doctor's notice in rather a singular manner, about thirty years ago, while practising on Cape Ann, Mass. An old woman sent for him one afternoon to visit her, and greeted him on his arrival with the announcement, "Doctor, I've got a tapeworm!" The doctor not finding any very satisfactory evidence of the presence of such a creature, tried to laugh her out of the idea, and left her. A few days after he was summoned again, when she told him—"Doctor, I've killed my tapeworm, and there he is!" showing a vessel half filled with the animal. On inquiry as to what killed it, she replied—"Well, I felt him a poking his nose up into my stomach again this morning, so I took a teaspoonful of elixir of vitriol. I thought that was the sourest thing I could find, and gave it to him for his breakfast." Subsequently the doctor met with two other cases on Cape Ann, and profiting by his experience in the case of the old woman, treated them successfully with the acid, giving ℥j in several ounces of water in the course of three or four hours.

A few years ago, in this city, Mrs. M——, a feeble woman, having kept her bed for five months, and at the time very low from a recent confinement, was surprised one morning by the passage of about five feet of tapeworm. Turpentine was administered for two days, without success. The acid, which had for the time been forgotten, was then given—three teaspoonfuls in twenty-four hours, in sweetened water, when a long worm was expelled. The patient speedily regained her flesh and strength.

All of these cases, excepting the first, remained under observation for some years, without any return of the worm. In all, the discharged worm was in the same fragmentary and semi-digested state. Finally, the doctor says, the remedy has never failed with him.

Quincy, *Ill.*, *Aug.* 10, 1860.

ART. IV.—*On Tropical Dysentery.* By RICHARD WHITTINGHAM, M. D., Surgeon Peruvian Navy.

DURING a residence of more than ten years in South America, the greater part of which time has been spent in the military and naval service of Peru, where dysentery forms one of the most important and fatal maladies, I have had many opportunities of observing the disease, and of seeing the almost total want of success which invariably attends the early attempts of the European surgeon to treat this "scourge of armies."

The official reports show that the British army has lost in its most important expeditions more men from dysentery than from the sword. During the late campaigns in the Crimea and on the peninsula of India, this disease has been very fatal among the troops, and the practice of the surgeons in charge attended with most unfortunate results.

During four years, I was in charge of the General Hospital here (in Callao), and a very great number of cases of dysentery passed under my treatment. I had been taught that dysentery was inflammation, and in its management, to place my chief reliance on the "lancet" and "calomel and opium." I was doomed to be miserably disappointed, and by dearly bought experience found that bleeding did no good—it only weakened the patient, without *telling* on the disease; and as to mercury, that it was applicable only to certain forms of the disease; while in others it did harm, or was unnecessary: and twelve months' later experience in the burning climate of the *Ecuador*, directly under the line, has only strengthened my opinion on this point; *bleeding* being borne with less impunity in *Guayaquil* than in the more temperate climate of Peru. No doubt dysentery is inflammation, but it is *specific* inflammation, and yields readily to certain *specific* remedies when properly administered.

In conversation with Dr. Rios, of Lima, a native physician of great experience, he informed me that he had learned to place his reliance on large doses of *powdered ipecacuanha* and vegetable astringents, particularly the *pomegranate* or *Granada* bark (viz: the dried rind of the fruit), in the form of decoction, and this practice, with some modifications, I adopted in the hospital.

The results of my practical experience in this disease are, that there are *five* distinct varieties of dysentery, requiring for their cure different modes of treatment:—

(1.) Dysentery dependent upon indigesta and feces retained in the bowels.

(2.) Simple *specific* dysentery, which may be subdivided into *common* and *bilious*.

(3.) Dysentery complicated with *enteritis*.

(4.) Dysentery complicated with inflammation of the *liver*, acute or chronic.

(5.) Putrid, gangrenous, or malignant dysentery.

It is of vital importance that the practitioner, when called to a case of dysentery, should make a very careful examination of the patient's abdomen, in order to ascertain which of the forms of the disease he will have to treat.

Mere tenderness over the region of the colon is almost always present more or less in simple dysentery. General tenderness of the abdomen, increased on pressure, belongs to enteric dysentery; and if the inferior lobe of the liver be found enlarged, and this viscus is tender on pressure, the case belongs to the hepatic variety.

(1.) Dysentery dependent upon indigesta and feces retained in the intestines.

Symptoms.—The characteristic symptoms of this form of the disease are, griping pains in the bowels, and a constant desire to go to stool; the evacuations being watery, mucous, or bloody and slimy, mixed with small lumps of fecal matter, called "scybala." The patient complains of a *load* in the intestines, feeling as if a ball or orange were lodged in the lower bowels. This he endeavours to throw off by violent efforts of straining, and though he feels these to be useless, he is unable to resist them. This sensation is obviously attributable to the enormously swollen state of the mucous membrane of the colon and rectum. The tongue is furred; there is some pain in the umbilical region after colic; there is *no* fever, but the heat of the skin and thirst are augmented at night; the abdomen is *hard*, but *not* tender on pressure.

Treatment.—These symptoms yield to the administration simply of full doses of purgative medicines: I prefer castor oil, and the free exhibition of copious enemas of olive oil and warm water. To this class of cases the observation of Dr. George Gregory is particularly applicable when he says, "but the employment of *purgatives* constitutes the most important part of the treatment of dysentery." They must be steadily persisted in until fecal evacuations have been procured, and the sensation of load in the bowels, which leads to the efforts of straining, is completely removed. *Then, and not till then,* may the practitioner desist from the free use of his *cathartics.* When proper fecal evacuations have been produced, it will be generally proper to continue the use of aperient medicines in smaller doses (the oil of sweet almonds, in doses of two ounces every morning, is an admirable remedy in these cases), and if after that the pain and discharge of mucus continue, the pulv. ipecac. comp. in doses of ten grains at bedtime, or twice a day, is an admirable remedy, well adapted to this stage of the disease.

(2.) Simple *specific* dysentery; which may be subdivided into *common* and *bilious.*

The *symptoms* are frequent calls to stool, with pain and tenesmus, sometimes nothing passing but mucus *streaked* with blood, and frequently large quantities of pure blood. The evacuations are attended by acute *cutting* pain across the bottom of the abdomen, over the *pubic region,* and

there is tenderness on pressure over the track of the *colon;* slight fever and much thirst; the tongue is covered with a dirty fur, and in the *bilious* cases there is nausea, often vomiting, and great prostration of strength, the edges of the tongue being yellowish.

Treatment.—I generally administer a draught composed of half a drachm to a drachm of powdered ipecacuanha, mixed in a little syrup and water; the quantity of ipecac. being increased or diminished according to the severity of the case and the strength of the patient; it should be given fasting, or early in the morning; the patient should lie in bed quiet, and not drink anything to excite vomiting. The medicine is *not* given as an *emetic*, but to produce its *specific* action on the disease. By the rectum I give half of the following enema, night and morning: R.—Radicis ipecacuanhæ contus. ℥j; aquæ ferventis ℔iss; fiat infusia, cola et adde syrupi morphiæ, ℥j.—M. Ft. enema. The ipecacuanha draught should be repeated every morning for three days. It generally produces but little vomiting, but the second or third dose causes copious bilious stools, which is the desired effect of the medicine. Under this treatment patients frequently pass very large quantities of vitiated matters from the bowels, and often all the dysenteric symptoms are at once relieved. By the *third* or *fourth* morning a *full* dose of castor oil should be exhibited; the quantity I give is from an ounce and a half to two ounces, mixed in the form of an emulsion; small doses of castor oil only irritate, and do more harm than good in dysentery. Should, however, the case be an urgent one from the large quantities of blood discharged by stool, and not allow time for the above treatment, I administer ten grains of ipecacuanha mixed with a grain of powdered opium, every six or eight hours, and the enema of infusion of radix ipecacuanha night and morning, till the urgent symptoms are arrested. This plan I have found to succeed much better than the acetate of lead and opium, so highly extolled by some authors in this form of the disease. Under this plan of treatment, though no blood now appears in the stools, a mucous diarrhœa, with *tenesmus*, often continues to harass the patient, and it is now that the vegetable astringents are of such infinite service. I give the Granada or pomegranate bark in the form of decoction: R.—Corticis granati ℥ij; aquæ ℔iss; boil to a pint and strain, and add syrup of morphia ℥j. A wineglassful to be given every four hours. The remaining symptoms will speedily diminish under the use of this medicine. The patient should, during the time he is under treatment, drink moderately of tepid rice water, with plenty of gum Arabic dissolved in it, and sweetened to his taste. In very severe cases, the only nourishment I allow is the white of an egg beat up with a teaspoonful of powdered gum Arabic, and white sugar, mixed in a teacupful of hot rice water, to be taken three times a day. The diet should be light throughout the cure. Under this plan of treatment, if the patient has been seen at all early, he is almost invariably well in a week or

ten days, and relapses are of rare occurrence when common care in the diet is observed.

(3.) Dysentery complicated with *enteritis*.

Symptoms.—In this form of the disease, in addition to the symptoms of simple dysentery, there is high fever; acute pain in the abdomen, increased on pressure; often this part is exquisitely tender; the patient lies on his back with his knees drawn up, and cannot bear the pressure of the bed-clothes. The pulse is *full* and frequent, but seldom *hard;* there is extreme thirst, and the tongue is covered with a dirty white fur; the features are anxious; the urine high coloured and scanty; and in fatal cases the fever assumes the typhoid form, and the patient sinks into a state of collapse.

Treatment.—Judging from the fever, fulness of the pulse, and, above all, the tenderness of the abdomen, which is frequently exquisite, general blood-letting would appear to be indispensable; and, indeed, these are the cases in which we are told to bleed freely, and leech abundantly; but such a treatment will not do in the tropical climate of South America, and we must always remember that in dysentery it is *specific*, and not common inflammation, we have to deal with. Indeed, so badly is bleeding borne in acute enteric dysentery here, that in one severe case, "having the fear of a lancet before my eyes," I was induced to order a dozen leeches to the abdomen; a poultice was applied to the leech-bites afterwards, and they bled freely; the next morning I found my patient in such an alarming state of collapse, that it was with difficulty he was able to bear the subsequent treatment, and made a very tedious recovery. The practice I adopt in these cases, is to place my patient in a warm bath, 94° Fahr., for twenty-five minutes, and administer ℞.—Hydrarg. chloridi mit. gr. xxx; pulvis opii gr. iij; confectio rosæ ʒj. Ft. massa et divide en dosis No. iij; capiat unam 6ta quâque hora. Six hours after the last dose of calomel and opium, I give a full dose of castor oil, from an ounce and a half to two ounces, in emulsion, the abdomen being freely fomented with flannels, wrung out of warm water, and if the tenesmus is urgent—which it generally is—an injection of starch and laudanum is thrown up into the rectum. If the castor oil is vomited, it should be repeated six hours after the first dose. The effect is generally a copious discharge of bilious stools, with the immediate relief of all the urgent *enteric* symptoms. When these have subsided, and the disease has been reduced to simple dysentery, it may be treated by ten-grain doses of ipecacuanha, and a grain of powdered opium, every six or eight hours; and, finally, when all inflammatory symptoms have subsided, and mucous diarrhœa with tenesmus continues to harass the patient, the decoction of Granada or pomegranate rind, and syrup of morphia, may be given, as in simple dysentery. The mercury thus administered rarely produces ptyalism, and the patient generally makes a rapid recovery.

(4.) Dysentery, complicated with acute or chronic inflammation of the liver.

Symptoms.—In addition to the symptoms of simple dysentery, there is pain in the right side, increased by pressure or on a deep inspiration; sometimes sympathetic pain in the right shoulder; a yellow tinge of the conjunctiva, and high-coloured urine.

Treatment.—These cases bear bleeding better than either of the others. The whole attention of the practitioner should be directed to the affection of the liver, regarding the dysentery as only a symptom of the deranged state of the liver and portal circulation; but I rarely use the lancet, preferring topical bleeding, by leeches over the region of the liver, and applying a cupping-glass over the bites, which has many advantages over the use of poultices; you may even regulate the quantity of blood taken with great exactness, while it does not make such a mess in the bed. The bowels should be first well cleared out by calomel and rhubarb, āā gr. x, followed by a full dose of castor oil, and then the mercury should be given in divided doses, at intervals, till slight ptyalism is produced. When the inflammation of the liver has been reduced by these measures, the dysentery generally subsides; if not, you may administer ipecacuanha as in simple dysentery, but it is obvious that, until the morbid state of the liver is rectified, no permanent advantage can be derived from specific treatment.

(5.) Putrid, malignant, or gangrenous dysentery.

There is a variety of this disease called malignant or putrid, from the tendency of the intestines to pass into a state of gangrene. This form of the disease is well described by Dr. Cornuel. It ravaged the island of Guadaloupe, in the West Indies, in 1837.

Symptoms.—The evacuations of bloody mucus are very frequent, and contain patches of membrane from the mucous coat of the large intestines; they have the putrid odour of gangrene strongly marked, while the room in which the patient is, as well as his breath, is impregnated with a putrid odour. The abdomen is not very painful, but greatly distended by gases. The tongue is loaded with a blackish fur; fetid sordes accumulate about the teeth and lips. The features are changed and sharpened; there is great prostration of strength, with hiccough and a viscid cold sweat; death rapidly ensues. This is the most *terrible* form of tropical dysentery; it is very common in the interior of Peru, and even in Lima, but is hardly ever seen on the sea-coast. It is highly contagious.

Treatment.—The remedy which, in these cases, acts like a charm, is the extract of nux vomica combined with opium in the following formula: R.—Extract. nuc. vomicæ gr. iv; extract. opii gr. iij.—M. Ft. pilulas No. iv. One to be taken every three hours.

The quantity of the nux vomica should be augmented to twelve grains; that is, *three* grains for a dose, according to the circumstances of the case; mucilaginous drinks, and enemas of decoction of althea, with solution of chloride of soda, are to be administered. When the patient has passed from the state of extreme danger, his case should be treated according to

the symptoms that may present themselves. I am quite ignorant of the mode in which the nux vomica acts, but its administration has saved numerous individuals affected with the worst form of dysentery from the very jaws of death.

Of a very large number of cases treated on these principles, in the hospital, the deaths did not average more than *two* per cent. But I do not include in this calculation those unfortunate cases in which from neglect or previous bad treatment ulceration of the colon had been allowed to take place. In such cases I have found the sulphate of copper, in doses of two grains, made into a pill with half a grain of extract of opium, and taken three times a day, a remedy which, in many cases, proved successful.

Ipecacuanha has often been extolled as a remedy of great value in dysentery, but I am not aware that its use in the *full doses* I have been in the habit of employing with such almost certain success is generally known. The pomegranate rind no doubt owes its astringent virtues to the tannin it contains. It is a singular fact that, in those countries where dysentery most prevails, both ipecacuanha and the Granada or pomegranate tree are indigenous. That the bane and antidote should spring from the same soil is one of the remarkable laws of nature.

CALLAO, WAR STEAMER UCAYALI, April 12, 1860.

ART. V.—*Some Practical Remarks on Chronic Inflammation of the Uterus.* By J. L. TEED, M. D., Mendota, Ill.

HYPERTROPHY of an organ may be either an independent original condition, without any known cause, or the result of chronic inflammation. Hypertrophy of the uterus, however, is, it may be said, a normal circumstance, as in pregnancy, and the uterus once impregnated, and thus enlarged, never returns to its original size. This enlargement, as well as that of independent origin, will not, if confined within certain limits, necessarily produce very unpleasant effects, but when combined with debility of the system, and a loss of local contractility, they occasion falling or prolapsus of the womb, but not always combined with any unusual discharge.

The cases combining both prolapsus and discharge, most frequently requiring the aid of the physician, are those produced by chronic inflammation, generally of the uterine cervix, although often affecting the body and appendages more or less, many of which having but little disposition to get well of themselves, continue for years, sometimes, alternately better and worse; but the majority extending their influence, produce secondary diseases, undermining the health with a slow but certain progress, to induce a

premature death, or to terminate spontaneously, after years of suffering, when the uterine organs naturally fall into their state of inactivity.

Chronic inflammation of the uterus is met with most frequently in women of loose character, in whom it was first accurately investigated; it also very frequently occurs in married women, and is not unfrequently found in single women of irreproachable character; thus, although sexual intercourse may, and sometimes will produce it, it will arise from other causes.

These causes are various, including all those circumstances which occasion disorders of menstruation, parturition, irritation of neighbouring organs, prolonged lactation, &c. &c.

The symptoms of chronic inflammation of the uterus are very well defined; there will be pain in the hypogastrium and pubes, or in one or both iliac fossæ, generally in the left, situated about the middle of the bend of the thigh, or at the junction of the middle and inner third; sometimes the pain reaches across the abdomen, a little below the umbilicus; pain may be also felt in the small of the back and ilia, in the sacrum and coccyx, in the hips and ischial regions, following the attachments and courses of the uterine ligaments. There is also very frequently a dull aching, gnawing pain felt in the vulva, which may extend downwards a considerable distance along the inner sides of the thighs.

The organ itself makes its existence perceptible; and owing partly to its increased weight, partly to an extension of its posterior ligaments, allowing it to slide forwards into the cavity of the vagina, and partly to a change in its position, whether of ante, or retroversion, it gives rise to the sense of falling, from which it has derived a name, and to disturbances in the functions of fecation and micturition.

Sexual intercourse often produces intense pain, even on entrance, when the vulva is the seat of the pain referred to; otherwise, only when the cervix uteri is interfered with. Yet, owing to the state of continued excitement existing in these organs, it is indulged in to a considerable extent, sometimes sufficiently to defeat all the means used for its cure, while in the single, manustupration is often resorted to; in other cases, intercourse is absolutely loathed, and the married state is one of the greatest of the patient's misfortunes.

The discharge varies from a viscid, colourless, transparent mucus, to a thick yellowish, muco-puriform fluid, generally innocuous, but sometimes sufficiently irritating to produce excoriation of the external parts, wherever it happens to remain in contact with them for some time.

Among occasional symptoms are pruritus pudendi, and excoriations, somewhat resembling chancres, but wanting in the indurated base, and presenting no regular shape.

In addition to the local, we have the general symptoms of constitutional irritation; the digestive apparatus is disordered, and all its functions ill-performed. When the discharge is very considerable, it must be an additional

source of mischief, partly by consuming the nutriment absorbed, and partly by increasing the work of the eliminating organs in removing the residua; there is a frequent feeling of weariness, often constant, and rendered insupportable by very slight exertion; the mind partakes of the debility of the body, while the local irritation, riveting the attention to the deranged organs, occasions in some a state bordering on nymphomania.

On examining digitally, the os uteri will be found more patulous than natural, the cervix generally enlarged, and sometimes much elongated; its surface often tender to the touch, varying in its hardness, and occasionally tuberculated. When the body of the uterus is also enlarged, it is plainly felt as a hard round body through the cul-de-sac of the vagina, especially if the position of the cervix be altered.

On examining by the speculum, the surface sometimes abraded, or ulcerated, will present various shades of redness; the os uteri enlarged, is often filled with white, transparent mucus, so tenacious that it is with difficulty removed; the yellowish creamy discharge from the external cervix occupying the upper part of the vagina.

In the treatment of this disease, more difficulties are experienced than would naturally be expected from a review of various authors. If the disease have been of long standing, there is a local inflammatory condition, requiring depletion, and a general debility contraindicating it, a local disease requiring rest, a constitutional disorder demanding exercise in the open air; local conditions requiring the thoughts to be abstracted from them, and a morbid sensibility as continually recurring to them; whichever indication you essay to follow, there is one equally strong calling in the opposite direction. While the individual herself, impatient of restraint, distrustful of the result of treatment, discouraged from the duration of the disease, with all her inclinations and desires tending to the opposite of your counsels, presents an impediment, often insurmountable; when, in the course of the case, any reverse occurs, and the patient suffers a relapse, though slight, the difficulties become incalculably augmented.

In these cases, to subdue the local inflammation or congestion is of the first importance; and this is often best accomplished by free blistering, especially if there be much abdominal pain; apply a small blister of about four square inches surface, on one iliac fossa at night, and the next night but one apply another, close by the first, and so on, until the whole surface, from one ilium to the other, has been traversed by five or six small blisters; never remove the skin, but dry each up as rapidly as possible. Brown's blistering tissue is the best application; these consecutive blisters should be repeated at short intervals, until the pain is quite subdued; the local soreness and pruritus are easily relieved by a wash of acet. plumb. ʒij, extract hyoscyam. ʒiv, dissolved in rain water Oj. As an application to the cervix, Dr. Ashwell's iodine ointment, composed of iodine ℈j, iodide of potassium ℈iiss, lard or suet ʒij; or the tannin ʒij, alum ʒiv, boiling soft water, Oij, recommended

by Dr. Tyler Smith; or the nitrate of silver, or its solution, ten to twenty grs. to ℥j of water.

The application of the nitrate of silver requires the use of the speculum, which had better be deferred as long as possible; many cases will get well without it, while its use tends to promote local congestion, and to fix the patient's thoughts more firmly on the seat of the disease. The nitrate of silver will, also, in some cases, produce sanguineous discharges, resembling the catamenia; if applied in the form of a moderately weak solution, this is not so likely to happen.

After the local inflammation is somewhat subdued, the use of the iron alum, in bitter infusion, as recommended by Dr. Tyler Smith, is very serviceable, when it does not produce constipation, or other intestinal disturbance.

The general treatment should be conducted with particular reference to the production of a healthy blood stream, watching carefully both the assimilating and depurating organs, particularly guarding against constipation. The use of stimulants requires great caution, as they may strengthen the inflammation, instead of the patient; the abdominal pain and heat will afford indications which may be followed with more safety, than the appearances of debility.

Early hours, both of retiring and rising, are very necessary, but especially of rising, which should always be done immediately, or soon after waking, always allowing enough sleep to satisfy the requirements of nature; but indulging in lying in a hot bed in the morning after waking, is injurious, as are late hours, heated rooms, and the excitement of parties.

The clothing should not be sufficiently heavy as to produce an overheated condition of the pelvis, and daily ablutions with cold water are extremely beneficial.

Mental occupation is a valuable auxiliary; the mind, when engrossed with some pursuit, becomes weaned from brooding over the ailments of the body; care should be taken in the selection of reading matter, and the better plan is to adopt some subject which may be made an object of study.

Should the prolapsus be productive of great inconvenience, the ring pessary advised by Dr. Meigs, will give great relief; it is of very easy application, and may be inserted by the patient herself without difficulty. It should be removed every night, and put into a basin of cold water, or it will occasion an accumulation of the coagulated discharges, and cause irritation.

After the inflammation has been reduced, which may, if very severe, require the application of leeches externally, or to the cervix itself; should much hypertrophy remain, the iodine ointment mentioned above, or a mercurial ointment made with suet, instead of lard, as advised by Dr. Simpson, may be applied, either by a sponge or a salve syringe; and the patient may use freely of artificial Kreutznach water, as advised by Dr. Rigby, in his

small, but comprehensive work on *Female Diseases*, a treatise of more sterling value than many works of much greater pretensions. The following is an analysis of Kreutznach water:—

Sod. chlor. . .	grs. 72.92	Pot. chlor. . .	grs. 0.97
Magn. chlor. . .	" 0.25	Calc. chlor. . .	" 12.98
Magn. carb. . .	" 1.27	Calc. carb. . .	" 0.27
Ter. carb. . .	" 0.20	Sod. brom. . .	" 0.30
Iod. mangan. and earthy bases with chlor.			" 1.47
Carbonic acid gas 5 cubic inches.		Water . . .	℥vij.

The maxim of Dr. R. C. Chambers should be ever remembered, "that the best remedy to a diseased organ is a stream of healthy blood, especially in chronic diseases;" and it may be that one great reason why so many of these cases remain uncured so long is, that specific treatment, as recommended by one or another, is followed, instead of studying the case individually, and bringing the general principles of therapeutics and pathology to bear upon it.

None of these remarks are intended to apply to malignant disease, corroding ulcer, or syphilitic affections of the uterus.

Art. VI.—*The Communicability of Secondary Syphilis.* By Richard McSherry, M. D., of Baltimore.

John H., a publican, asked my advice during the summer of 1859, for symptoms of secondary syphilis. He was then on a course of iodide of potash, and I recommended him to continue it. Within a month after, he casually consulted me as to the propriety of marriage, saying he was nearly or quite well. While doubtful, myself, as to the communicability of secondary syphilis, I advised him, by all means, to delay marriage indefinitely. My advice was not taken. On the 26th of October, he married a young girl of irreproachable character, whom I had known for many years. He and his wife removed immediately from this city.

On the 15th of March last he called, to desire me to visit his wife, whom he had brought back in bad health to her father's house, and he stated to me his apprehension that he had communicated disease to her. He did not wish her, if such proved to be the fact, to be made acquainted with the nature of her disease.

Accordingly, I took her in charge, and learned from her that, within a few weeks after her marriage, she was taken with an obstinate form of sore-throat, which was still unrelieved. For the past six weeks, she has had eruptions upon various parts of her limbs, trunk, and head; she has painful warts about vulva and anus; she is *enceinte*, having had no return of

menses since marriage; she has had no primary sores. I ascertained, upon further examination, that her husband had had no sores of any kind upon the male organ since marriage, but he had some excrescence about the anus.

The whole appearance of this poor girl was cachectic, and her countenance and manner exhibited the deepest dejection. She implored me to tell her, positively, what was the matter with her. I soon found that she had consulted an elderly female friend at her late place of residence, who had access to some medical books, and this friend had not been slow to inform her of the nature of her malady. The girl was convinced, but she wanted my assurance to justify a separation from the man who had injured her so deeply.

I postponed giving her a decided answer, but went on to treat her with iodide of potash and sarsaparilla, making local applications to the sores, according to their condition; some were open, and some had the scabs of rupia. I used, as local applications, the black wash, nitrate of silver, tincture of iodine; and to the warts, or condylomata, which were intensely painful, so as to destroy all sleep for many nights together (the physical pain, perhaps, had not more to do with this than the mental distress), a powder of tannin, arrowroot, and opium. The course of treatment was not very successful. With the advance of pregnancy, and its attendant discomforts, my patient got worse, rather than better.

On account of her great suffering, I substituted calomel and opium for the iodide and sarsaparilla. The change gave her some relief. While on this course, a daily dribbling of waters commenced about the 1st of July, a month before her expected confinement. On the 10th of July, I delivered her of her first child, a male, perfect, but of very diminutive size, though without any manifest disease. About the third day, a papular eruption made its appearance on the neck, and about the genitals. This appearance passed off spontaneously, when the child began to purge, and waste away, while its skin became deeply jaundiced. I gave it some very minute powders of hyd. c. creta, but the mother's milk failed, and the child wasted away, and died on the 27th of the same month. There was a dark discoloration across the hypogastric regions before death, but nothing more of the papular eruption.

Since its death, the mother is improving, on a modified course of mercury and opium; the sores and condylomata have nearly disappeared. She has taken no formal action against her husband, since she has been led to believe that he did her no *intentional* wrong.

Such are the outlines of a case which I think full of significant interest. The communicability of secondary syphilis is one of the most important questions of the day, and every case that bears upon the question has its importance. There is no doubt upon my mind but that, in this instance, the mother was contaminated through the fœtus, and that the first developments of the disease with her were of the secondary order.

Secondary syphilis appears to be rarely communicated by the simple congress of the sexes. Experiments have shown, indeed, that this form of disease may be inoculated, but a successful inoculation, where the morbid matter is absolutely thrust into the lacerated absorbents, will not prove that mere sexual contact will produce the same effect. It is surmised, but has not been demonstrated, that the semen, when failing to be prolific, may convey disease to the female. Instances, however, have been observed where man and wife have cohabited for some considerable time, where the man had been syphilitic, but was apparently cured, without transmission to the wife, and yet, when she has conceived, she, too, has manifested the contamination. (See papers on this subject, by Mr. Hutchinson, *Med. Times and Gazette*, Dec. 20, 1856, and Jan. 1857.)

There was published in the *Montpellier Médical*, during the past year, a remarkable instance of another most prolific method of transmitting the secondary disease, which was spread from a diseased infant. The case also has this much analogy with mine, that is, that the mother contracted her disease during, and, as I believe, in consequence of gestation.

Under the head, which I translate as follows, "Congenital syphilis transmitted from a husband to his wife and infant; from the latter to two nurses; from one of these to her mother-in-law; from the other to her own child and husband," by Doctor Junquet, of the 2d regiment of Engineers, there is the following summary, after the facts had been given in more detail.

The doctor at first was at a loss to understand the rapid extension of a disease so like secondary syphilis in appearance, while he had rather inclined to the school that that stage was not transmissible. But progress, symptoms, and cure, removed his doubts, even before he traced the disease to its starting-point.

Such is the order of facts, says Doctor Junquet, in conclusion, which I have observed, convinced that I had to deal with a syphilitic disorder, I wished to go back to its source. It turns out, from my investigations, that M. X. (whose diseased child had infected so many other persons) had had the venereal disease before his marriage. His wife, who had been up to that time in perfect health, experienced, within a short time after her marriage, various eruptions, which had impaired her health; an abortion of a dead child at six months was probably in consequence. Her second pregnancy, although more favourable, apparently, was more pernicious in its results; in fact, the infant, as I have said above, had, shortly after its birth, an erythematous rash, excoriations, aphthæ of the buccal mucous membrane, &c., of a specific character, as was shown by their affecting the nipples of two nurses, who were free from all affection while nursing their own children. One of them, on returning home, gave to her mother-in-law, who undertook to draw off the milk from her distended breasts, a virulent disease of the mouth, so that mother-in-law and daughter-in-law were for a long time

suffering from various eruptions subsequently. The other nurse was equally contaminated in giving her breasts alternately to her own child, and to that of M. X. With her the syphilitic disease manifested itself first by fissures, then by aphthæ and pustules on the breasts and vulva; by these, the husband was infected.

Such, he says, is the interesting history of this disease, which was successively transmitted to seven persons; it was a hereditary syphilis communicated from father to child. This latter infected the mother and two nurses. The ravages were not confined to these, since four other persons were successively attacked.

This is a strong chain of evidence, going to prove the communicability of secondary syphilis, and showing at the same time how the mother may become infected by the fœtus in the womb. M. X. had no apparent disease (at least none is mentioned), except strictures of the urethra following attacks of gonorrhœa, from which he had also suffered when unmarried. The taint of the secondary disorder undoubtedly was deep in his system, and, as it were, latent, but still, as the facts show, it was abundantly capable of transmission.

I do not consider commentary necessary on the case and facts presented in this paper; they must carry their own weight to the mind of the physician, and influence him, 1st, to the most extreme care in the cure of his syphilitic patients; 2d, to restraining, as far as he can, precipitate marriages; and, 3d, to guarding those whom he has to advise against the numerous dangers, both immediate and remote, proceeding from contact or intercourse with attainted subjects.

Art. VII.—*On the Therapeutical Use of the Oxalate of Cerium.* By Charles Lee, M. D., House Physician to Blockley Hospital.

About a year since, Prof. Simpson, of Edinburgh, first called attention to the medical use of this preparation, heretofore rarely known, even in the chemist's laboratory. Presented under such high authority, it is not surprising that in a few months there should be made, both in Europe and America, numerous trials of its efficacy in different gastric affections. It was used by Prof. Simpson, so far as I can learn, only in the vomiting of pregnancy. (*Med. Times and Gazette*, Sept. 1859.) But more recently it has proved useful in so much wider a field, that it promises to assume a permanent place among the mineral tonics, and, as such, some account of its therapeutic application may not prove uninteresting.

As regards the preparation itself, but few words are necessary. Its base,

Cerium, was first isolated by Berzelius and Hisinger, in 1809; together with lanthanium and didymium, it is obtained in considerable amount, as the mineral *Cerite*, from the mines of Sweden; and in this country it has been found, in the mineral allanite, in the interior of New York, and near Bethlehem, Pa.

From either of these sources, it may be obtained by means of the mineral acids and sulphuretted hydrogen at a high temperature, and finally precipitated by a solution of oxalic acid, as described in an interesting paper by Mr. Mayer, of New York. (*Am. Journ. of Pharm.*, January, 1860.)

As thus obtained, the preparation is a white granular powder, an oxalate of the protoxide of cerium, inodorous and tasteless, insoluble in water, alcohol, and ether, but freely soluble in sulphuric acid, by which, as Mr. Mayer remarks, it may be distinguished from the other salts of the earths.

When I first began to use the cerium, I limited it to cases of advanced pregnancy, which had resisted all the ordinary remedies, such as creasote, hydrocyanic acid, ice, bismuth, &c. I specify *advanced* pregnancy, for in no case have I seen this troublesome symptom appear before the fourth month, without yielding to creasote, or prussic acid, or better still, minute doses of dilute sulphuric acid and brandy. The following cases will illustrate these remarks.

Case 1. Louisa M., æt. 32, was admitted to the obstetrical ward, 16th March, 1860, in the eighth month of her second pregnancy. For three months past, she has had at least two or three spells of vomiting every day, with utter distaste for food, and for some time has been under treatment in the city, without relief. When I first saw her, on April 3d, she was ordered to remain in bed, and to take one drop of creasote in emulsion every three hours; no improvement following in the next two days, this was changed for hydrocyanic acid, and subsequently for a mixture of dilute sulphuric acid and curaçoa.

After the lapse of a week, her condition was unchanged, with the exception of increased debility. All previous treatment was stopped, and a pill of two grains of oxalate of cerium was given every third hour. On that day she vomited once, two hours after taking the first pill; the following day she took the same amount before each meal, with no return of the vomiting. The cerium was continued one day more, and from this time until her confinement, April 22d, she enjoyed excellent health in every respect.

Case 2. Hannah S., æt. 21, primipara, was admitted to the same ward, April 5th, apparently in good health. But in the course of a week, perhaps from restriction to the plain house diet, she was seized, on rising from bed, with severe vomiting, amounting, in a few days, to violent retching, and returning at frequent intervals, on her making the slightest exertion. For three days she was treated with opium, creasote, and subnitrate of bismuth, and kept perfectly at rest; but as no change was perceptible by the 19th, I resorted to the oxalate of cerium, giving every second hour a powder containing one grain of the cerium with a few grains of sugar. After the third dose her vomiting ceased entirely; but fearing a relapse, a similar

powder was given before each meal for two days longer, with as complete success as in the former case.

Case 3. Charlotte L., æt. 28, was admitted May 16th, in a state of extreme nervous prostration. She expected to be confined in six weeks, but during the last four months she had suffered from such incessant vomiting, as to keep her in daily dread of an abortion. In her former pregnancies the same thing had occurred, once to such an extent as to induce labour at the seventh month; and then, as now, the vomiting would begin without any assignable cause, both during the day and night. For many weeks, she had eaten only one meal a day, and was disgusted by the mere sight of food, which was sure to bring on her vomiting. Her great nervous debility, and the apparently uncontrollable character of the emesis, induced me to prescribe the oxalate of cerium at once. She took at first two grains, and afterwards one grain every two hours during the day; but the first dose alone seemed necessary, for from that moment the vomiting never returned. The patient said it acted "like a charm," and until her child was born (at full term), her appetite remained excellent, and she felt quite as well as before her pregnancy.

Case 4. In this case, though similar to the foregoing, the cerium was less happy in producing a permanent effect. When administered, it readily arrested the vomiting for a few hours, or during that day; and, by keeping the patient under its influence, to a slight extent, the emesis was held in check, until it gradually passed off entirely.

But, as I have remarked, the efficacy of oxalate of cerium appears by no means confined to the relief of vomiting in pregnant women. In the vomiting that often accompanies phthisis, in pyrosis, hysterical emesis, and the various dyspeptic conditions of the stomach, especially in atonic dyspepsia, I have found the effects of this remedy no less encouraging. In the following cases it was given to check the vomiting of phthisis.

Case 5. C. F., æt. 58, was admitted to the phthisis ward about the end of March, 1860. He gained slowly in strength up to the middle of June, when he lost his appetite, and suffered from constant nausea and vomiting. This was always brought on by a severe spell of coughing, or by eating a single cracker, and the nausea remained even when the stomach was empty. Various remedies had been tried without relief, and on July 10th, he took, for the first time, one grain of cerium before each meal; he vomited once that evening, and once the following day, but thenceforward improved rapidly, in great measure regaining his appetite; and although the vomiting sometimes returned when the cerium was stopped, a few grains of the medicine always promptly arrested it.

Case 6. James S., æt. 31, far advanced in phthisis, with slight valvular disease, had the vomiting well marked, when admitted, July 16th. He was extremely feeble, and could eat nothing; ordered Huxham's tincture and cod-liver oil, which only sickened him more. He was treated then with cerium, in doses of one grain every two hours; his vomiting ceased after the third dose, and during the ensuing four days that he was under treatment, his appetite was nearly restored; but no final report could be made of this case, as the patient was soon after removed from the hospital by his family.

Case 7. Conrad G., æt. 20, entered the medical ward, with inherited phthisis, enfeebled from night-sweats, loss of appetite, and occasional vomiting, greatly increased by violent coughing. On July 18th, I ordered him a grain of oxalate of cerium an hour before each meal; in two days he said he felt better than for many weeks; he no longer vomited; his appetite had returned, and, with his increasing strength, the night-sweats rapidly diminished in severity, and recurred only at long intervals.

Case 8 was one of hysterical amenorrhœa, characterized by violent convulsions, succeeded by gnawing pains in the stomach, with severe nausea and vomiting. I tried in vain to arrest this, and restore the patient's appetite by gastric sedatives, tonics, and nerve stimulants, but with no effect. The cerium was then prescribed in one-grain doses, with which—suspecting worms in the alimentary canal—I combined four grains of santonine; this was given every third hour, and by evening the vomiting and gnawing sensations in the stomach ceased, and, though they returned once or twice after subsequent convulsions, a few doses of the cerium invariably put a stop to the symptoms, as long as the case remained under my charge.

Finding the cerium so excellent in repressing vomiting, I tried its effect in fourteen cases of atonic dyspepsia, and uniformly with the same gratifying results. These cases were carefully selected, and only after an exact diagnosis, was the cerium treatment adopted, for benefit could not reasonably be expected, where the dyspepsia was dependent on malignant, or other organic lesions. And here it is worthy of remark that, whether in relieving the nausea, or simply restoring the appetite, the effect of the medicine was perceptible almost as quickly as in the cases first quoted. The same point is emphasized in the paper of Prof. Simpson, already referred to, and it was indeed this fact—the rapidity of its therapeutic action—that especially engaged my attention, and, after repeated experiments with this view, I was inclined to regard it as peculiarly characteristic of the cerium.

In reference to the view of its therapeutic nature expressed by Prof. Simpson, who considers it a *sedative tonic*, I think it just to state that I endeavoured to test its validity in several cases of acute and subacute gastritis, both idiopathic and supervening on debauch, or delirium tremens, but in none could I detect any amelioration of the symptoms. I make this remark with no disposition to impugn the opinion quoted, and only to record my experience so far as it extends; for, I have neither the inclination nor the data sufficient to build a theory upon the therapeutics of an agent as yet so little known as the oxalate of cerium.

ART. VIII.—*Surgical Cases.* By PHILIP S. WALES, M. D., Assistant Surgeon U. S. Navy. (With two wood-cuts.)

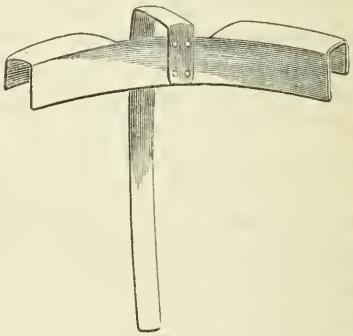
CASE I. *Fracture of Lower Jaw.*—J. O. Sea, age 30, was admitted on the list April 19, 1859. He had been on liberty at Nagosaki, Japan, and while ashore drank too freely of saki (Japanese wine), which intoxicated him pretty thoroughly. In this condition he came aboard and created some disturbance, which necessitated his confinement in irons; while this was being done, some one or other struck him a heavy blow on the left angle of the lower jaw with a marlin-spike, knocking him senseless on the deck. Soon, however, he slept, and two or three hours passed away, and then, awaking, he complained most bitterly of intense pain in front of the left ear. I then saw him, and easily detected a fracture at the symphysis menti, and being late at night, I simply applied a bandage until morning, when a better opportunity would exist for an examination. On removing the bandage at that point, I discovered that the bone was also broken at its left condyle, the latter being entirely separated from its ramus and drawn forwards and upwards, while the ramus was depressed downwards and backwards. At the symphysis blood issued from between the two front incisors, which were situated the one behind the other, the left half of the bone being depressed one-quarter of an inch or more below its fellow. The fragments of bone were now replaced as well as possible, and a piece of soft pasteboard applied beneath the chin and secured there by Gibson's bandage. This arrangement remained on some hours, but it was found that it would not retain the left half of the bone in contact with the right; then Barton's bandage was tried, but it failed also; when I attempted to wire the teeth together, but they were so closely planted, and overrode each other, and the great pain this process caused, entirely prevented me from obtaining any satisfactory result. It then occurred to me that an apparatus might be made to answer all the indications of treatment, so I adopted the following contrivance:—

First, I made a model of the lower jaw with softened pasteboard, and then spread this out on stiff block-tin, which was marked, cut into shape, and modelled so as to exactly fit the inferior maxilla, with two arms extending up in front of the ears. The horizontal part was so rounded as to fit the lower edge of the bone for its whole extent, and projected upwards towards the alveolar process about half an inch, and backwards beneath the chin an inch and a quarter—this edge being at the same time circular and fitting the neck above the hyoid bone. The whole was then covered with buckskin, and padded here and there as necessity called for pressure at this or that

point. (See Fig. 1.) Three straps were attached to the apex of the ascending ramus: 1, buckling over the os frontis; 2, over the ossa frontalia; and 3, over the os occipitis—all being secured on the median line by straps.

Fig. 1.

Fig. 2.



4. Another strap (5) passes through a bracket soldered under the body of the apparatus, and buckles over the back of the head.

Secondly, to the anterior or chin part of the apparatus a slat is soldered, and through this passes a perpendicular bar of stiff and flattened wire bent opposite the mouth at a right angle, and projecting into it is soldered to the dental piece, which is made of tin, and fitting the teeth clasps them on either side with an interval between the lateral limbs. (Fig. 2.) This, the dental piece, is movable along with the perpendicular bar which slides through the chin slat, and can be secured by the thumb-screw.

In my case I applied the apparatus in the following manner: First, the dental piece was applied after the teeth were brought into the same line of continuity, but still not on a level. Now the "chin piece," as adapted with the perpendicular bar sliding through its guide and the straps buckled, thus bringing the fragments into their natural position, and the lower jaw between two parallel forces, forcing the ascending ramus forward and upwards towards its condyle, which is subject to a backward pressure by a small compress placed on the inner side of the ascending limb of the apparatus, and in front of the left ear. When the dental and chin pieces were sufficiently approximated, the thumb-screw was screwed upon the perpendicular bar, thus securing a maintenance of this relation.

When the apparatus was thus nicely adjusted, it felt comfortable to the

patient, relieving the pain caused by the displacement of fragments, and did not inconvenience him in taking fluid nourishment. On the 20th of May the apparatus was removed, and the fragments were united nicely, and a line of callus could be felt on the inner surface of the bone, behind the incisors, one of which had a small fistulous orifice over its fang.

In another case, the lower jaw was fractured in three or four places, along with that of the right superior maxillary, producing frightful laceration and contusion of the soft parts. The wound was produced by a discharge of cannister from a Chinese eight-pounder, the shot having glanced from the gun the patient was aiming. Considerable hemorrhage ensued, and the person lay senseless for a long time; finally he rallied, and then the lips of the wound were brought together, the fragments adjusted as well as possible, when the chin-piece simply of this apparatus was applied, which allowed the free use of cold water dressings, &c. The apparatus was kept on until union had taken place, after which a few spiculæ of bone were discharged, and the patient got well without deformity; the lips, however, adhered to the gum, but which was subsequently separated with a few touches of the knife.

Now, in this case, I think it answered admirably in affording a bed of the proper shape for the fragments to lie in, at the same time resting them in their natural position.

The "dental piece" can be made into an infinity of shapes, to suit different cases, and by aid of a form with the lateral pieces connected by an arching transverse bar, I succeeded in retaining in place a large piece of the alveolar process, containing three teeth that had been broken off.

CASE II. *Amputation of the Shoulder-Joint.*—Wm. Wilson, second gunner, age 35, born in Scotland, was admitted with a gunshot wound of the arm and shoulder, June 14, 1859. A salute was being fired with two twelve-pounders, brass-guns, which were loaded and fired with great rapidity; one of them "hung fire," when this man, thinking the gun had missed, suddenly introduced his ramrod, and hardly sent it home, when the gun exploded, blowing him from the ship's deck into the water. A boat was immediately sent, and he was picked up and brought on board, having four fingers of his right hand completely destroyed, the wrist-joint disorganized, and a compound fracture of the radius and ulna, two inches from the tuberosity of the former; besides, the parts were much bruised and burned. A deep wound, penetrating the shoulder-joint, commenced under, and behind the axilla, at the lower margin of the latissimus dorsi, and extended anteriorly across the part, close to the side of the chest, to the convoluted tendon of the pectoralis major, the shoulder being considerably contused and blackened by powder. The humerus was broken at the fracture of the upper with the middle third. The arm was pulseless from the axillary artery, together with the vein and brachial plexus of nerves, being

cut through. From this extensive injury of bloodvessels only, a slight oozing of blood took place.

The face was burned and much swollen, the eyes being completely bunged up, and prominent. A deep wound was seen penetrating above the edge, into the left orbit, with the eyeball seemingly depressed, and its lower lid badly torn. The cornea of both eyes seemed to be uninjured. A consultation was held, and amputation at the shoulder-joint agreed upon.

The patient was put under the influence of ether, and compression made on the subclavian artery. An external flap was made of the deltoid, by cutting from without inwards, and the head of the humerus was disarticulated, and the knife passed to its inner side, and the incision completed by keeping it close to the side of the thorax, exposing the serratus magnus, this having to be done, on account of the extensive injury in the axilla. The flap was now brought to the side of the chest and secured by six interrupted sutures and narrow strips of adhesive plaster, the arteries having been previously secured by twelve ligatures. About an ounce of blood was lost during the operation.

Cold-water dressings were applied, and the patient put to bed, and had an anodyne of sulphate of morphia given him. Olive-oil and lime-water were applied to the burns on the face. The patient passed a good night. On the 15th, had some febrile excitement; gave neutral mixture at intervals, and repeated the anodyne, which procured him a good night's rest.

17*th*. Doing well; skin cool; pulse reduced in fulness and frequency; bowels not opened. Ordered pulv. rhei gr. xij.

18*th*. Did not rest well last night; complains of pain in the shoulder. A splinter of the oak ramrod, an inch and a half long, was removed from the wound over the left eye. Wound dressed with cold water; eyes and face improving; bowels moved; allow tea and toast.

20*th*. Has been doing well, wound healing by first intention; wound of the eye discharging pus copiously. Gave anodyne at bedtime.

23*d*. Had a good deal of pain in the shoulder yesterday evening, could not sleep. Gave yesterday, ol. ricini, which produced two evacuations.

24*th*. Has been sitting up to-day; allow chicken-soup.

28*th*. Doing well; five ligatures were removed this morning.

July 1. Improving; another ligature came away; dress wound, &c. The cornea of the left eye has become opaque and horny. Has been taking sherry for several days; omit it and substitute brandy. Bowels opened; pain in the left eye; all the ligatures have come away except two. Gave anodyne at bedtime.

26*th*. Complains of uneasiness in the frontal sinus on the left side; wound over the eye fills up slowly. All the ligatures have been detached.

August 1. Improving rapidly; wound of the eye filled up with granulations.

10*th*. Improving.

30*th*. Wound of the arm entirely and firmly healed; a small fistulous orifice alone remaining over the eye.

Four months after this I heard from the man, and was told that another oak splinter was removed from the eye, and then the wound healed, and the patient is now enjoying excellent health.

Art. IX.—*Case of Extensive Compound Fracture of the Cranium. Severe laceration and destruction of a portion of the brain, followed by fungus cerebri, and terminating in recovery.* By Bedford Brown, M. D., Yanceyville, Caswell County, N. C.

Sufficiently numerous cases are on record of perfect recovery after dangerous and extensive injury of the brain from mechanical causes; but certain peculiarities in the treatment adopted during the progress of the present case, and the success attending them, seem to justify our adding it to the list of those already published of a similar character.

The subject of the present case was a boy about ten years old, who was kicked by a horse recently shod, producing a compound fracture, with depression, fractured bones being imbedded to the depth of three-quarters of an inch in the substance of the brain. The fracture occupied a large portion of the right side of the frontal bone, extending from just above the superciliary ridge nearly to the coronal suture above, and in the opposite direction from about the central portion of the os frontis to its point of union with the parietal bone. The opening in the skull would have measured about two inches in one direction, and an inch and a half in the other. The fractured bones, though deeply depressed, were rather loose from being entirely separated from the periosteum and dura mater, and, when completely removed, left the entire right anterior lobe of the brain exposed. The form of the wound was rather semilunar, corresponding to that of the horseshoe. The sensibilities and voluntary powers of the patient were perfect. Indeed, the cerebral functions were apparently entirely unimpaired. A large amount of blood had escaped by hemorrhage. Portions of lacerated brain, that had been forced out, were adhering around the edges of the wound, in all at least a teaspoonful.

I requested Dr. Roan, my partner, to attend the case with me. On commencing our examination, we found the sensibilities of our patient so extremely acute as to prevent all further proceeding without the aid of some anæsthetic. Having no guide to govern us in forming an opinion of the effects of this class of agents on a brain so dangerously injured, we discussed the probable results of the procedure with caution and prudent deliberation. I am not aware of any published case of the kind, wherein

anæsthetics were resorted to during the operation for the removal of the depressed bones; usually there exists no necessity for it. But this means affording the only chance of quieting the violent struggles and resistance of the patient, we proceeded cautiously, while the most serious apprehensions suggested themselves to our minds of the result, to administer by inhalation a combination of sulphuric ether and chloroform until the system became completely insensible. On examination, the fractured portions of bone were found to have been driven deep into the brain, backwards and upwards under the sound bone, detaching the dura mater therefrom to a considerable extent. The fractured portions, being separated from both periosteum and dura mater, were removed by means of the elevator and forceps. The spiculæ were so numerous and deeply imbedded, that we were under the necessity of proceeding cautiously and slowly. We removed in all ten pieces, some of them two inches in length. This part of the operation occupied at least fifty minutes, during which we were compelled to repeat the anæsthetic several times, as the effects subsided.

Our preconceived ideas in regard to the specific action of anæsthetics would very naturally deter us from their use. Their effects in this case on the brain, at least so far as the circulation of that organ is concerned, were made perfectly manifest. Here a large portion of the surface of the organ was completely exposed to view, and any physical change in the brain, produced by the agency of the remedy, could be easily observed. Considering the various speculations in regard to this influence, the effects in this case were highly interesting. Hemorrhage, which had been free previously, ceased almost entirely after the full anæsthetic impression had been produced.

It is conceived by the profession that under the impression of chloroform the actual vascularity of the brain is increased; that absolute congestion takes place. The present case afforded an ample opportunity to determine this question definitely. Whenever the anæsthetic influence began to subside, the surface of the brain presented a florid and injected appearance. The hemorrhage increased, and the force of the pulsations became much greater. At these times, so great was the alternate heaving and bulging of the brain, that we were compelled to suspend operations until they were quieted by a repetition of the remedy. Then the pulsations would diminish, the cerebral surface recede within the opening of the skull, as if by collapse, the appearance of the organ becoming pale and shrunken, with a cessation of the bleeding. In fact, we were convinced that diminished vascularity of the brain was an invariable result of the impression of chloroform or ether. The changes above alluded to recurred sufficiently often, during the progress of the operation, in connection with the anæsthetic treatment, to satisfy us that there could be no mistake as to the cause and effect. Again, these changes began invariably to appear with the earliest influence of the remedial agent. As consciousness diminished, in a corre-

sponding ratio there was diminution of vascularity; and as the mental powers returned, the contrary would occur.

I feel satisfied that the congestion detected in fatal cases from the use of anæsthetics, is not the cause of the fatality, but the consequence of too great an influence exerted on the nerves presiding over the processes of respiration and circulation. When the sensibilities of these systems of nerves are so far impaired as to fail to respond to the stimuli of air and blood, the equalization of the circulation is immediately destroyed, hence the accumulation of the fluids in the larger vessels. When anæsthetics are absorbed through the lungs by inhalation, the agent is received directly into the circulation, and thence distributed to the remotest parts of the system, and in so doing each distinct system of nerves is brought under their influence simultaneously. The systems of voluntary, sensitive, special sensation and reflex nerves, sharing alike the complete anæsthetic influence. But those great systems of nerves, the pneumogastric and ganglionic, presiding over two of the most important and indispensable functions of organic life, are not influenced in corresponding degree with the others. Nevertheless, their action is diminished to a certain extent, as is evinced by the diminished frequency of the respiration and heart's action, and in the present case a decrease of cerebral vascularity. Further, under the full impression of anæsthetics, the capillary circulation is generally impaired, from loss of force in the action of the heart, and consequently the fluids collect in the large vessels of the system.

The actual influence exerted by anæsthetics, when introduced into the system by inhalation, is a question of paramount importance, not only in a surgical point of view, but one of exceeding interest in certain medical relations. This class of remedies have recently come into use for the treatment of convulsions originating from certain causes. In convulsions developed during or after parturition, or during an attack of *mania à potu*, or convulsive attacks originating purely from traumatic causes, the inhalation promises to accomplish much as a remedy.

In the present case, we had every reason to believe that the anæsthetic influence was decidedly that of a direct sedative over both circulatory and nervous systems.

It is to this influence that the good effects of the anæsthetic in this case is due. We might go even still farther, by making the suggestion that the same class of remedies may be applicable to those violent acute cases of cerebral inflammation that occasionally occur after a proper degree of depletion. No less an authority than Prof. Skoda, of Vienna, has recently lauded very much the employment of chloroform in the treatment of acute pneumonia. In all of this testimony, we have sufficient evidence of the fact that chloroform and ether possess remarkable sedative powers over the circulatory system, when taken by inhalation.

After all the fractured portions of bone had been carefully removed, the

appearance of the wounded brain was anything but encouraging. All of the dura mater covering that portion was torn into shreds, which were removed with the knife. Also all of the cortical, and some of the medullary portions of that part of the organ were lacerated and loose. This was thrown out of the wound by the cerebral pulsations, and amounted in quantity to two or three drachms. After the wound had been thoroughly, but carefully, cleaned with the sponge, and there was a cessation of all hemorrhage, the edges of the integument were brought together by means of sutures, leaving the most dependent angle of wound open, to admit of the escape of such fluids as might accumulate. Over this a dressing was applied, moderately firm, composed of a linen compress secured by a bandage. Our patient soon reacted well and recovered his consciousness perfectly. We left him for the night with injunctions to the nurse to guard him against all excitement.

After-treatment.—In thirty-six hours after the injury, symptoms of inflammatory reaction began to make their appearance. An active inflammatory fever was developed, attended with pain in the head, vomiting, constipation, and preceded by a distinct chill. The pulse ranged at about 125 in the minute. There were slight indications of mental disturbance. As the patient had already lost a large amount of blood from hemorrhage, I deemed it prudent to treat the case without any further abstraction of blood; therefore, after prompt and free purgation, Norwood's tinct. veratrum viride was administered at intervals in sufficient quantities to reduce the circulatory excitement and keep it within safe limits; cold applications were made freely to the head. Under this treatment I had the satisfaction of witnessing a material improvement in all of the symptoms in twenty-four hours. This course was persevered in for three or four days with an entire and permanent relief of the inflammatory excitement.

Fungus Cerebri, a peculiar method of treating it.—At a period of about eight days from the reception of the wound, during which time there had been some purulent discharge, the dressings became displaced, and on their removal it was discovered that the sutures had cut their way through the integument, the wound had reopened, and a large fungus cerebri filling the entire opening was protruding nearly an inch from the skull. The appearance of fungus arising during the treatment of injuries of the skull and brain has ever been considered a formidable complication. The principal means recommended for the relief of this condition is that of mechanical pressure. The knife and application of various caustics for the destruction of the fungoid growth have also been recommended. The chief difficulty arising from ordinary mechanical pressure is, that when it is made with sufficient firmness to prove efficient, symptoms of compression of the brain and coma are liable to supervene from its use. To obviate these difficulties, an appliance was resorted to possessing all the requisite power for the perfect reduction of the fungus within proper limits, without any of the injurious effects of ordinary pressure.

This plan consisted of what might be very well termed a self-regulating graduated compress; the compress was composed of a common surgeon's sponge of close and soft texture and sufficiently large to more than cover the entire wound. Previous to application, the sponge was subjected to firm compression for the purpose of reducing its bulk to as small a compass as possible. This process is of importance as regards the action and ultimate success of the remedy. Before the application of the sponge, a piece of soft linen was laid over the surface of the fungus to prevent the rapidly forming granulations of the growth from making their way into the interstices of the sponge. Over this the sponge was applied and secured moderately firm by a few turns of a broad roller around the head. The application of this peculiar compress created no injurious or unpleasant consequences whatever. The principle of action of this method of exerting mechanical pressure is one possessed by no other means; the true rationale of which may be explained thus: the constantly exuding excretions from the wound and fungus are gradually absorbed by the porous body of the sponge, from which the elastic compress is made to expand regularly and progressively, exerting a very decided but yet equable and gradual pressure, which ultimately, with scarcely a perceptible progress, reduces the morbid mass to its proper limits within the cranium and retains it there. At the end of a few days, when the dressings were removed, it was found that this object had been accomplished in the most satisfactory manner; the fungoid mass had been reduced even beneath the edges of the surrounding bone; the edges of integument were now brought nearly together by means of adhesive straps placed across the wound, and over this the sponge compress and bandage reapplied as before. The same dressings were renewed every few days as they became displaced, at each of which times a progressive diminution in the dimensions of the wound was observable; in three or four weeks the wound closed perfectly by union of the edges of the integument in a well formed cicatrix. The patient now, more than eight months since the injury, has continued in good health up to this period. When he is under the influence of much mental excitement, the pulsations of the brain are still visible through the large cicatrix.

ART. X.—*Obstetrical Cases.* By ROBERTS BARTHOLOW, M. D., Asst. Surgeon U. S. A.

THE subjoined cases seem to me sufficiently rare and curious to justify me in presenting them to the readers of this Journal. Whilst the first case does not determine the lesions peculiar to dropsy of the amnion—if there be such—it may, in connection with others of a like character on

record, assist in the establishment of a just pathology. Considered in this light it may prove useful.

The second case presented difficulties not frequently met with. In clinical experience, the diagnosis in cases of this character cannot be made with the facility with which writers on female maladies assign to each symptom its full significance and diagnostic value. Doubts may arise in the course of such complications, which the most faithful study of all the signs and symptoms present cannot resolve. A fact not less true, than "that errors in diagnosis are more frequently traceable to forgetfulness in searching for all possible evidences of disease, than to misinterpretation of those actually discovered."[1]

CASE I. *Dropsy of the Amnion and Discharge of the Watery Fluid from the Vagina.*—Mrs. ——, æt. 26. Has black hair, brown eyes, brunette complexion; five feet five inches high, and weighs one hundred and thirty pounds. Has had two children; miscarried of a third, some months ago. Previous to this miscarriage had enjoyed excellent health, but since, has been somewhat ailing. Is now pregnant for the fourth time. When about four months advanced, October 10, 1859, without any warning suffered an uncontrollable "bearing-down," and a sense of heat and burning about the vagina, which was followed by the discharge of about two ounces of watery fluid. Her abdomen, which was much larger than usual at this period, seemed to be a little smaller after this flow, but on the following day had increased to its usual size.

I saw her on the 25th of the same month. She represents that these attacks have happened nearly every day, and that the amount of water discharged increases at each emission. Her condition is as follows: her countenance is pale and anxious; she has a good deal of pain and aching in the loins and lumbar region, and complains of weakness and inability of the lower extremities. She gets out of breath and is fatigued upon making the least exertion. She suffers from pains in the face and head (tic douloureux) and has frequent paroxysms of hysteria. Her tongue is pale and slightly furred; mouth pasty; has much thirst; is costive. Her urine is rather scanty, but, she says, normal in appearance; she micturates frequently with pain and difficulty. Her abdomen is as much distended as at the full term, and occasions as much discomfort. The enlargement is uniform, and the uterine globe can with difficulty be defined filling up the whole cavity. Fluctuation obscure and deep-seated. The movements of the fœtus are frequent and active; she thinks more so than usual at this period.

She was directed to take a laxative and an anodyne, and to rest as much as possible in the recumbent posture.

Notwithstanding these measures, the discharges of fluid continued as before, but in increasing quantities.

On the night of the 15th of December, she was awakened by a severe "bearing-down pain," and a profuse discharge of fluid, estimated at thirty-two ounces. A slighter flow continued until morning.

December 16. Made a vaginal examination this morning. The external parts and the vagina are moist and relaxed; the os soft and patulous; no

[1] Preface to "What to Observe."

membranes can be felt. The abdominal distension is greatly lessened and the uterine tumour appears below the umbilicus. She feels altogether lighter and better, but on making an attempt to move around the room, considerable pain is experienced, accompanied by the discharge of water. This state continued, notwithstanding the administration of opiates and the maintenance of rest until the night of the 18th, when violent pains coming on, I was sent for. On making an examination I found the os uteri relaxed and the left lateral plane presenting without the "bag of waters." After waiting as long as I could with propriety, to see whether the case would terminate by the "spontaneous version," I turned and brought down a foot. A living male child was born. The placenta was delivered with some difficulty and delay; its size was enormous for the period, and occasioned more pain than the passage of the child. The uterus remained quite voluminous for two months. The lochia was profuse, and having apparently ceased in two weeks, came on again and persisted obstinately for two weeks longer. Under the use of blisters to the sacrum, injections of cold water and the administration of tincture of ergot. This discharge finally ceased, and Mrs. —— convalesced satisfactorily. The child lived feebly twelve hours.

Approximately, about three gallons of fluid were discharged from the first flow on the 10th of October, to the labour on the 18th of December, 1859.

Remarks.—A watery discharge from the vagina, and dropsy of the amnion, are treated by obstetrical writers as distinct pathological conditions, and undoubtedly, frequently are such; but in this case, were conjoined. The former state, it is said, occurs in three modes: 1st. As a profuse secretion by the glands of the cervix uteri; 2d. As a secretion of the mucous membrane of the vagina; 3d. As a "dribbling" of the liquor amnii, or liquor chorii. I need hardly intimate the inapplicability of the first two explanations to the phenomena in the above case. For the following reasons, I conclude that the fluid was derived from the cavity of the amnion: the liquid had the sensible qualities of the liquor amnii; odor, fluidity, and slight unctuosity, derived from the vernix caseosa; the discharge occurred at intervals, in a sudden gush, with pain and uterine contraction; the size of the abdomen was lessened by each flow, and moreover, when labour came on, no membranes presented, nor was there a discharge of water, corresponding to the usual flow, when the membranes are ruptured.

The following symptoms indicated clearly enough, dropsy of the amnion: the signs of pregnancy were well marked; the sudden enlargements alternating with the diminution of the abdomen after an emission of fluid, indicated that the cavity of the uterus was the seat of the dropsical effusion; the sense of fluctuation communicated to the hands placed on opposite sides of the abdomen, was that of a deep-seated fluid, and had not the distinct undulatory motion of the aqueous accumulation of ascites; there was no œdema of the labia or inferior extremities, and, finally, the fluid discharged had the characteristic qualities of the liquor amnii.

The pathological peculiarity of this case, was the unusual size of the placenta; it was fully one-third larger than the largest healthly placenta

at full term, and the vessels of the cord had a corresponding development. I could discover no disease upon examination of the placenta, other than simple hypertrophy of its proper structure. The amnion and chorion exhibited no traces of inflammation or other disease. I find upon reference to the literature of this subject within my reach, that this peculiarity existed in nearly all the cases of dropsy of the amnion. In some instances syphilitic disease affecting the amnion seemed to have caused an undue accumulation of fluid; but in this case there is no reason whatever to suppose that a syphilitic taint existed.

Mrs. —— was six and a half months advanced at the time of her premature labour, calculating from the last menstrual period. The child had all the vigor and development belonging to that period of intra-uterine life, and its vitality was therefore in no way influenced by the collection and discharge of the watery fluid. It had been otherwise, if a syphilitic taint had contaminated the system of the mother.

CASE II. *Anasarca and Ascites occurring with, and masking the existence of Pregnancy.*—Mrs. ——, æt. 24; has auburn hair, blue eyes; is five feet six inches high; temperament, leucophlegmatic. Married about one year ago (August, 1858). Menses ceased some time during last May, precise date not recollected. Pregnancy commenced with the usual functional disturbances, morning sickness, various nervous and hysterical phenomena, &c. She then began to lose flesh and to experience jactitations of the limbs and involuntary fantastic movements (chorea). She left the post on a visit, and whilst absent these symptoms increased in severity, and the nausea and vomiting interfered so much with the process of nutritive assimilation that she became much emaciated. She consulted a civil physician, whose principal remedy was Fowler's solution, which he continued until her stomach would retain nothing, and all the other symptoms were aggravated. A consulting physician prescribed cimicifuga (*Actea racemosa*), under the use of which she improved. The involuntary movements were never entirely relieved. After this improvement, her abdomen suddenly enlarged and she began to notice œdema of the labia and inferior extremities.

I was consulted for the first time on the 20th of September, 1859. She appears in tolerable health, but rather pale and flabby. Her eyelids are slightly swollen; abdomen very large, but as she was sitting in her parlour, I made no special examination. She reports that the movements of the fœtus had been active some days before, but have not been felt since. Lower extremities much enlarged and pit deeply. Has a painful sense of fatigue upon making the slightest exertion; cannot walk across a room without assistance. Pulse is full and rapid; respiration hurried; tongue clean; appetite good; great thirst; stomach irritable; bowels constipated; urine scanty but reported healthy; bladder irritable.

Ordered a laxative and the following: R.—Acet. scillæ, spts. ætheris nit., āā ℥j; potassæ acetat. ℥j.—M. To take a dessert-spoonful three times a day. Diet to be mild and unstimulating.

September 25. No improvement. The stomach would not retain the mixture. The œdema has become general; the face and upper extremities pit under pressure; the vulva is enormously enlarged. Opened a vein and abstracted 12 oz. of blood. To take pulv. jalapæ comp. ℥j.

26*th*. The anasarca has disappeared since the venesection, most suddenly; but the abdominal distension is as great. A violent cephalalgia has supervened, affecting principally the orbital and frontal regions.

October 1. Various anodynes and antispasmodics relieved the cephalalgia, and she expresses herself as much better. In the evening, after having been unusually cheerful, her attendants observed a sudden alteration in her appearance, and, becoming much alarmed, sent for me. Found her in an hysterical paroxysm; had the vacant countenance, the meaningless eyes, the chokings and sobbings characteristic of that affection.

3*d*. This morning she awoke with nausea and vomiting, apparently produced by a dose of morphia, administered to quiet restlessness and induce sleep. Within the last twenty-four hours the anasarca has returned; she is in great distress, constantly changing her position and crying out with the pain attending every movement; her eyelids and cheeks are swollen and wrists pit under pressure. The vulva and inferior extremities are if possible more distended than before. Girth of abdomen forty-two inches. The abdominal walls are thinned by the pressure, and the integument has that striated appearance seen in advanced pregnancy or ascites. The enlargement extends to the ensiform cartilage, and is uniformly dull and flat on percussion, except a very limited spot at the epigastrium; fluctuation most distinct; sensibility so exquisite that she cries out with pain at the gentlest percussion. The uterine globe cannot be defined. A careful exploration fails to detect either the sounds of the fœtal heart or the placental souffle; the fœtal movements no longer felt. The distension of the vulva is so great, and the sensibility of the parts so exalted (hyperæsthesia), that it is impossible to make a satisfactory vaginal examination. After repeated efforts I was unable to reach the os uteri, and could not, therefore, determine the state of the organ or practise the "ballottement." The diaphragm is pressed up by the accumulated fluid against the lungs, impeding respiration, which is consequently hurried and laborious. Respiration 30 per minute; pulse 125, quick, irritable, but not deficient in strength; action of the heart laboured, but no murmur; no abnormal pulmonary sounds; has but little appetite; considerable thirst. Her mental condition is hysterical; she has become garrulous; laughs incessantly; has an imperfect power of prehension. Ordered pulv. jalapæ comp. ʒij, to be followed by potassæ bitart. ℈j every four hours.

4*th*. The compound jalap powder was retained and produced three copious stools. Passed in the last twenty-four hours 12 oz. of urine. The nurse reported a quantity of blood in the urine, but threw it away before my visit. In the evening ascertained that Mrs. —— had made frequent attempts to evacuate the bladder without success—introduced the catheter and drew off 16 ozs. of urine.

Chemical and Physical Characters of Urine.[1]—It is turbid, yellowish, and has an ammoniacal odour. Nitric acid causes an abundant precipitate, unaffected by heat. Under the microscope, desquamative casts, epithelial scales, some blood-globules and numerous crystals of the mixed phosphates appear.

5*th*. Within the last twenty-four hours, 28 ozs. of urine drawn off—a considerable increase. Chemical and physical characters unchanged. She is restless; requires frequent changes of position; cannot lie down, but is supported in the semi-erect posture. Pulse 120.

[1] Not having a specific gravity bottle or urinometer at hand, I am unable to give the specific gravity.

12*th*. Considerable improvement since last date. The bi-tartrate of potassa has produced pretty free diuresis, the daily amount of urine having been raised to 60 ozs. To-day the abdomen, at its most prominent part, measures thirty-five inches, and the œdema has disappeared from the upper extremities and from every part of the lower extremities except the feet. But a slight cloud appears in the urine to-day on the application of heat and nitric acid. She is still hysterical; has various hallucinations due in part to some obscurity of vision (functional amaurosis.) Cannot distinguish persons who enter the room, except by the voice. Her eyes have a vacant stare and the pupils are dilated and sluggish. For the last three afternoons has had a chill followed by fever and perspiration. To take at noon 10 grs. of sulphate of quinia.

13*th*. The chill was very slightly marked this afternoon. The fœtal movements felt to-day for the first time since my attendance. On placing the hand upon the uterine globe, now readily defined, the movements of the fœtus are excited.

15*th*. Having had a decided chill yesterday afternoon, I ordered to-day 15 grains of quinia. A marked diminution in the number and frequency of the arterial pulsations resulted, and she lay quietly with a cool skin, without the usual chill and fever.

17*th*. Is much better; pulse is slower and the breathing comparatively free from oppression. Does not require such frequent changes of position. The abdominal tenderness much less. Bladder torpid; catheter still necessary. No chill to-day.

18*th*. Was called at 1 A. M. Mrs. —— was suffering from violent pain. On examination found the os relaxed and the head presenting. In two hours a male child was born, stillborn, of the development usual at five months. Placenta of the ordinary size; amount of liquor amnii, normal.

In a few days, every dropsical symptom disappeared, and Mrs. —— gradually recovered her usual health. The indistinctness of vision was relieved by a course of ferruginous tonics, alternating with the bitter infusions.

Remarks.—At the time of my first visit to this lady, circumstances prevented me making an examination, sufficiently thorough, to arrive at a correct diagnosis, and consequently I scarcely suspected the grave character of the dropsical effusion. I supposed it to be due in part to arsenical poisoning, in part, to the plethoric state of the sanguiferous system. When an opportunity of making a more thorough examination was afforded, the existence of the fœtus seemed to be involved in doubt. I discovered general anasarca and ascites, and was unable with the most careful exploration, to detect the sounds of the fœtal heart, the placental souffle, or to define the uterine tumour. On account of difficulties already explained, it was found impracticable to determine the state of the os and neck of the uterus, or practise the ballottement.

Was it not a case of amenorrhœa, dependent upon ovarian disease? The history of the case gave colour to this supposition: after the cessation of the menses, she suffered from grave disorder of the general health; she became much emaciated; had nervous symptoms analogous to chorea, and was treated for chorea by the civil physician consulted. In a doubtful case

the statements of a patient with regard to quickening and the fœtal movements cannot be relied on. A case occurred to me once of this character. A woman who had one child, which died, was extremely anxious to become *enceinte*. Her health was delicate, and she had frequent attacks of hysteria. At length the menses ceased and her abdomen began to enlarge. She had morning sickness. About the fourth month, she supposed she felt the "quickening," and from this time the fœtal movements were very active. Calculating the termination of her pregnancy from the last menstrual flow and the quickening, on the precise day thus determined, she took to bed with labour pains, sent for her friends, and had all the little paraphernalia in readiness for the event. When the pains became violent, her husband came for me. On my arrival I made the usual inquiries, and observing the regularity and activity of the pains, had no doubt that it was a case of genuine labour. However, upon making an examination, I discovered that the uterus was not impregnated, and, to the profound astonishment of herself and friends, asserted that she not only was not in labour, but was not pregnant. The shock of this communication and the mortification of having committed such an error, effectually reduced the size of the abdomen, and on the following day all external signs of pregnancy had disappeared. The woman died subsequently of general dropsy.

Remembering this case of "spurious pregnancy," and others of a similar character on record, I received with caution the statements of this lady about the movements of the fœtus. These doubts were founded in a just appreciation of all the difficulties of the case, and influenced the treatment. With the subsidence of the abdominal effusion, these doubts were resolved.

The dropsical accumulation in this case depended upon desquamative nephritis, one of the forms of the so-called Bright's disease. Whether this disease was induced by pregnancy, or whether it would have been developed without the occurrence of pregnancy, it is impossible to determine. As the health of the patient was perfectly good previous to the cessation of the menses, it is probable that the functional changes connected with pregnancy devolved an especial duty upon the kidneys which they were unable to perform. The injudicious use of arsenic may have contributed to this result.

The amaurosis in this case was an interesting incident, connected with the presence of albumen in the urine. The persistence of this symptom gave rise to serious apprehensions lest the functional disorder might terminate in organic lesion. The many hallucinations experienced arose from the muscæ volitantes and the distorted outlines of objects. These hallucinations were more frequent in the evening and night, when the additional obscurity in which objects lay rendered them more liable to misapprehension.

During the course of the disease, Mrs. ——'s mind was reduced to a state of imbecility—a derangement, functional, of the organs of the intellect,

as the amaurosis was of the optical apparatus. There was no evidence of uræmic intoxication, though the amount of urine secreted was extremely small at one period in the history of the case.

FORT RIDGELY, MINNESOTA, May, 1860.

ART. XI.—*Complete Inversion of the Uterus at Four Months of Utero-Gestation. Replaced Six Days after the Accident.* By E. W. WOODSON, M. D., of Woodville, Ky.

ON the 2d of Aug. 1859, I was called in consultation to see Mrs. G——, aged 27 or 28. Had been pregnant about four months. While engaged in washing, some distance from the house, violent labour pains came on, so severe that she could not get to the house. Being very much alarmed, and feeling the fœtus protruding through the vagina, she took hold of it, and with great force pulled it from her, bringing the uterus entirely out, thereby producing "complete inversion." Not understanding the nature of the accident, she forced the uterus back into the vagina, after tearing off most of the placenta, and did not call for medical aid until five days had elapsed. She then sent for her family physician, who had me called in as soon as he ascertained the nature of the case.

Upon examination, I found the womb barely inside the vagina, the fundus presenting externally, and about the size of a large pear, a portion of the placenta, almost decomposed, still adhering. I introduced my hand, (having no instruments with me), and attempted to replace it by making steady pressure against the fundus. Was forced to desist on account of the great pain produced by cramping of my hand. I ordered the vagina to be cleansed by warm, bland injections, gave an anodyne, and left her until next day. I then had an instrument made similar to "Simpson's Uterine Sound," except not so much curved, with a ball at the end, size of a half oz. bullet. Upon my second visit, I introduced the speculum and passed this instrument through it, placing the ball exactly against the fundus, and made steady pressure for some moments, when I had the satisfaction of feeling it give way, at first gradually, then suddenly with a jerk, the instrument passing up some two and a half or three inches. The pain was not very great, and the patient expressed great relief as soon as it was replaced. The loss of blood was not great or alarming, although it had continued from the time the accident occurred.

She recovered without a bad symptom, and much sooner than I expected. Her being remarkably robust and in excellent health previous to the miscarriage accounts for the favorable result.

TRANSACTIONS OF SOCIETIES.

Art. XII.—*Summary of the Proceedings of the Pathological Society of Philadelphia.*

1860. *May* 23. *Incised Wound penetrating the Thoracic Cavity and involving the Left Lung.* Dr. Harlan exhibited this specimen.

A German, aged 22, was brought to the Pennsylvania Hospital on the evening of April 18th, with a stab above the left clavicle. The external wound was about an inch long; it was an inch and a half from the sterno-clavicular articulation, and its direction was upwards and outwards. There was scarcely any external hemorrhage. The patient was much prostrated; his pulse was feeble and frequent, and he was in an insensible condition, probably from the combined effects of prostration, fright, and excess of lager beer. The wound was brought together with lead sutures, and stimulants and opiates were administered. The next day his pulse and general condition had improved, but he complained of pain over the left side of the chest in front, and his respiration was rather frequent and short. Percussion over the left side of the chest was preternaturally clear in front, and flat nearly to the axillary line behind. The respiratory murmur on this side was very feeble, and the impulse of the heart could not be felt. On the 20th, percussion in front gave a decidedly tympanitic sound. The line of dulness extended slightly, and varied with the position of the patient. Unusually distinct egophony was heard beneath the left scapula. The heart was much displaced; its sounds could be heard most plainly to the right edge of the sternum, over the fourth costal cartilage. The respiratory murmur was still more feeble and distant on the left side, and puerile on the right. After this time the pulse became firmer; his general condition improved; the tympanitic sound became much less marked, and the respiratory murmur more distinct, though the line of dulness extended slowly. Loud friction sounds were heard with the impulse of the heart. The wound united by first intention, with the exception of a little suppuration from the points of suture which ceased entirely in a few days. It was surrounded for a time with slight swelling and redness but no emphysema ever appeared about it.

About the first of May, he became more feeble; he expectorated a thin, bloody fluid, which afterwards was followed by distinct pneumonic sputa. There was pain, dulness, and fine crepitation on the right side behind, and the line of flatness, on the left side increased with great rapidity until it reached the third rib, when the patient was sitting up. There was no cough at any time. Excessive prostration and dyspnœa were followed by delirium, and death took place on the 8th of May.

Autopsy.—The cicatrix in the skin was firm—scarcely distinguishable on the under surface. There was a small abscess containing about a drachm of pure pus beneath the skin and extending under the clavicle, but not connecting with the cavity of the chest. With this exception the track of the wound was entirely closed. The apex of the left lung for a space of three inches in diameter, was glued by recent lymph to the parts beneath the seat of injury. The whole left lung was completely hepatized with the exception of a slight crepitation at its upper extremity. It was compressed to

half its normal size, and its pleura was covered with a thick deposit of lymph. The pericardium was healthy within, but densely coated with lymph on the outside. The left side of the chest contained six pints of bloody serum and nearly two handfuls of black jelly-like clot. There was some effusion and other signs of pleurisy on the right side; its lower part was pneumonic. On account of the union of the wounded tissues, and the changes resulting from inflammation, the source of the hemorrhage could not be determined.

Tubercular Disease of the Walls of the Heart.—In exhibiting the specimen Dr. DA COSTA stated that the history of the case had been furnished him by Dr. C. C. Sherard, one of the residents at Blockley Hospital.

A coloured boy, fourteen years of age, was sent from the out wards to the medical wards, May 7th, 1860, having previously been an inmate of the house for several months. His history, as far as could be ascertained was, that he came into the house suffering from a disease of the elbow-joint, which was resected. Afterwards his arm was amputated below the shoulder-joint. The wound healed up readily and entirely. Whilst in the medical wards he complained of no pain whatever, but was very weak. He had a trifling cough, and seemed to suffer from some shortness of breath. Neither the heart nor the lungs were specially examined. The left side of his face was disfigured by a scrofulous tumour which involved the parotid, submaxillary, and sublingual glands. A large fistulous opening existed half way between the angle and symphyses of the jaw. The boy died on the third day after his admission, much prostrated.

Post-mortem examination twenty-four hours after death.—The glands of the neck were about the size of a hen's egg, exceedingly hard, and full of a whitish cheesy substance. They pressed on the jugular vein, which below the point of contact was very much enlarged. On the mucous membrane of the larynx were blackish deposits. The left lung was bound down by adhesions. A few small tubercles were found in the upper portion of both lungs. The walls of the right ventricle possessed somewhat more than their normal thickness. In parts no muscular substance at all remained, the entire wall having been converted into a yellowish or cheesy mass lined on each side by serous membrane. In other portions there was a thin layer of muscle. The right auricle was in the same state. The left auricle and ventricle were much hypertrophied; the wall of the latter measured in parts nearly three-quarters of an inch; here and there only it contained a few deposits. There were more in the left auricle. The endocardium was smooth; but from the lining membrane of the lower portion of both ventricles sprang delicate villous growths. The valves were sound.

The papillary muscles did not seem to have been involved in the disease. The pericardium was in a few spots slightly raised by the deposits under it; but the membrane itself was not roughened. It was only at the back of the right ventricle, and near the auricle, that there existed a few scattered tubercles on the surface.

Microscopically examined, the muscular fibres on the right side were found to be very granular, their markings indistinct; some of them were covered with oil drops. The latter were also detected in the yellowish masses, in addition to granules, and many small non-nucleated cells. No fibrous tissue was seen under the field of the instrument.

The liver was enlarged, and presented the appearance of the ordinary nutmeg liver. The intestines were healthy. The kidneys, like the spleen, were somewhat increased in size, but not otherwise altered. In the abdo-

minal cavity was considerable fluid; so, too, in the ventricles of the brain, the substance of which was soft. Yet neither there, nor in its coverings, were there any tubercles. The main interest in this case centres in the heart. It furnishes an instance of scrofulous or tubercular disease of that organ, a morbid state of extreme rarity. Dr. Da Costa stated that he had met before with cases of tubercle of the pericardium, but never with tubercular formation in the walls of the organ. It was strange that the pericardium should have been so nearly healthy. In most of the cases of tubercle of the heart recorded (and they are not many), the morbid matter is formed on the external surface, and then becomes gradually imbedded in the muscular substance. The pericardium bears almost always the brunt of the disease.

Another remarkable circumstance in the case presented was the comparative absence of tubercular depositions in the lung. It is true, a few scattered tubercles were encountered in the organ, but they were exceedingly minute, and evidently of very recent formation, much more recent than those on the heart.

Circumscribed Sloughs of the Arm inducing Hemorrhage, and necessitating Amputation through the Shoulder-joint.—Dr. HARLAN presented this specimen, obtained from Patrick Martin, an Irishman, aged 19, who was admitted to the Pennsylvania Hospital on the 26th of March. He stated that about two weeks before that date, his right arm had become stiff, swollen, and painful on motion. Previously to this time he had been constantly at work in a blacksmith shop, where he had been employed for two years, and had enjoyed perfect health with the exception of an abscess on the back of the hand, which had nearly got well when the swelling of the arm commenced. At the time of admission, there was a swelling on the upper and inner part of his right arm, quite tense, and of a dark-red colour, and having so much the appearance of an abscess, that the diagnosis was at first doubtful. In a few days the skin became more livid, and small openings formed in it. A probe introduced into one of these could be passed for nearly its whole length in any direction. The skin was now freely divided on a director, and a yeast poultice was applied, which soon brought away a large slough of cellular tissue. After this there was profuse suppuration from between the muscles of the whole upper-third of the arm, the skin retracted and sloughed at its edges, leaving a large, raw surface, and the sloughing extended into the axilla, and even behind the scapula and beneath the pectoralis.

The axillary artery could be felt apparently covered only by the sheath. Tonics and stimulants were freely administered, and a wash of chloride of zinc was applied to the arm and injected into the axilla. Great improvement in the appearance of the parts and the character of the suppuration followed the use of the chloride of zinc, the edges of the skin united to the tissue beneath; granulations sprang up, and the patient seemed to be in a fair way for recovery. On the 25th of April there was quite a copious hemorrhage of bright arterial blood from the axilla. The stream was not large enough to come from the main artery and the pulse at the wrist was not affected. The hemorrhage was temporarily stopped by the application of lint saturated with a strong solution of Monsel's salt, and a consultation of the surgeons of the hospital was called. As the source of the hemorrhage could not be discovered, and the limb was thought to be disorganized beyond the probability of recovery, it was determined that the patient's only chance was in amputation at the shoulder-joint, which was immediately performed by Dr. Pancoast. Nineteen vessels in the stump required ligatures. For additional security the main artery was tied several inches higher up.

The muscles of the arm are much softened—their colour is very dark, and in many places the fibres cannot be traced. The cellular tissue has nearly all disappeared from the inter-muscular spaces, and black clots are found there. The brachial artery is unusually small, but apparently perfectly healthy.

June 13. Dr. HOYT reported a case of *valvular disease of the heart and acute nephritis.*—A woman, about 40 years of age, had for some years been subject to paroxysms of dyspnœa and habitual oppression, which the reporter attributed to mitral disease. In October, 1858, she experienced several attacks of paralysis of the right side, occurring in close succession, with loss of speech. She soon regained the use of her limbs, but articulation continued impaired, and she suffered pains in the limbs which had been paralyzed. In March, 1860, another paralytic attack occurred, rendering deglutition difficult. The patient recovered from it, but was still feeble, when, on the 17th of May, she was seized with a violent pain in the right lumbar region, which was also aggravated by pressure. Her condition improved until June 1st, when the lumbar pain returned, but with less severity than at first, and she died on the 5th.

The heart was double the normal size, and its walls were hypertrophied. The mitral valve was much thickened, and the tricuspid in a less degree. The right kidney was a little smaller than natural, and exhibited on its posterior surface two whitish patches a little over an inch long, and somewhat less in width, raised above the surface of the organ, and about one-third of an inch in thickness. The rest of the kidney was somewhat redder than usual. Examined under the microscope, by Dr. Woodward, the white patches were found to be composed principally of lymph corpuscles together with a large quantity of oil globules. The tubuli uriniferi were readily seen throughout the deposit.

Cancer of the Rectum.—In calling the attention of the Society to this case, Dr. PACKARD remarked that he was indebted for its history to Dr. Reese: "Mr. J——, aged 48, a planter, living on the Mississippi between Natchez and Vicksburg, medium height, and stout built. Had enjoyed good health (with very few exceptions) until about eighteen months ago. He came under my care first, about a year since, and had then been suffering for some months with a moderate diarrhœa, attributed by himself to exposure to the wet, on his plantation. On careful examination he presented as follows: *skin* natural; *pulse* very slightly accelerated, but generally normal; tongue moist and slightly furred, *not at all red; abdomen not painful* on pressure; stools numbered four to six a day; for the most part quite natural in appearance, with the exception of being too thin. There was never any pain either *preceding* or *during* the evacuations. The only uneasiness the patient ever complained of, on the closest questioning, was a dull undefined soreness in the cavity of the pelvis which he felt, chiefly in the sitting posture, but which was very much relieved by reclining on a couch. This sensation of soreness was chiefly complained of some months before his death, and *passed entirely away* for at least eight or ten weeks before the close. The most careful manipulation could elicit no evidence of any enlargement of the liver or spleen, or of the existence of a tumour of any sort. There was never the slightest sign of anything like *stricture of the bowels*, though occasionally a slight attack of *hæmorrhoids*. The patient frequently complained of some difficulty in his *urination*, occasioning him to empty his bladder quite frequently, and with some delay; but as he was always relieved by mild diuretics, and as the

secretion presented nothing specially abnormal, it did not occasion any particular anxiety.

The appetite was, until nearly the last week of his life, *very good*. His *diet* was very carefully managed—being nutritious and digestible—wine and brandy being allowed as required.

The *treatment* need not be detailed. Every plan that my own judgment—aided by that of the gentlemen who at different times saw him in consultation—could suggest was tried, but without much apparent benefit. He continued to emaciate almost *from the first*—in spite of the fair amount of nutriment that he took—and to an extent that the number of dejections would hardly justify. This circumstance, conjoined with a peculiar aspect of countenance, awakened in us some suspicions of organic malignant disease, although we generally were inclined to the belief of the existence of *chronic ulceration* of the bowels.

About forty-eight hours before his death (June 3d), the action of his bowels suddenly ceased without any assignable cause. The peristaltic movement appeared to be reversed. Nausea and vomiting occurred very frequently—being afterwards followed by constant regurgitation, without nausea. *Nothing could possibly be made to remain on the stomach.* The matter ejected was at first bilious—afterwards dark—but neither bloody nor fecal.

Injections of a stimulating character were repeatedly used, with the hope of acting upon the bowels and relieving the distressing regurgitation. Attempts were likewise make to procure the endermic action of morphia; but without any impression, until half an hour before death, when the bowels were moved. But the exhaustion and prostration of the patient were too great to admit of his rallying, and he finally sank under their power."

The *autopsy* was made by Dr. Packard, assisted by Dr. Reese, thirty-six hours after death. Body much emaciated.

Abdomen only examined. The great omentum formed a band corresponding quite closely to the linea alba; it was firmly adherent below to the pelvic viscera. The *liver* was very large and fatty; the gall-bladder very greatly enlarged, being distended with gall-stones, four of which were of enormous size and cylindrical shape, while the others were small and irregularly disposed. The *kidneys* were large and fatty; the supra-renal capsules healthy.

The *intestinal tube* seemed healthy until within about three inches of the anus, where a very large mass of cancerous disease bound the rectum and bladder firmly together. On laying open the thick walls of the rectum, the diseased portion was found marked off by a decided irregular line, below which the whole inner surface of the gut was raised and uneven. The consequent rigidity of the walls had not led to any contraction of the orifice, so that there had been no stricture during life. The *bas-fond* of the bladder was also the seat of very extensive adventitious deposit.

June 27. *Transposition of the Arteries.*—Dr. Jno. F. Meigs presented a specimen of this taken from a male child, born at full time, on the 30th of April, 1860, under the charge of Dr. Ellwood Wilson, of this city. The labour was easy and natural in all respects. At the time of birth the child cried immediately on entering the world, but not with full vigour. Its general development was good. It might have weighed, at a guess, from 7 to 8 pounds. Dr. Wilson noticed nothing unusual in the appearance of the infant, except that its cry was neither so vigorous nor so sustained as is common. No discoloration was then observed. It was washed and put to the breast at once, and nursed well.

The child continued to nurse well, its bowels and kidneys acted naturally, and nothing beyond its seeming rather weakly was remarked until the twelfth day after birth, when, as the grandmother was preparing to wash it, it had what was supposed to be a convulsion. On the following day Dr. Wilson was called, when he found it with cold extremities, shrunken features, the surface generally pale, but with marked lividity about the mouth and eyes; the pulse was very feeble and rapid, so much so as to make it impossible to count it; the respiration was moaning and sighing. It could still nurse. The treatment directed was perfect rest on the right side, with the head and shoulders elevated, and twenty drops of brandy in water every two hours.

From this time it became gradually weaker; the moaning respiration was more marked, the nursing more imperfect, and the shrinking and discoloration of the surface more decided. During the last three days of its life the fingers and toes became quite livid or purple, as also the parts around the mouth, whilst the remainder of the surface was not particularly changed. It had no convulsions, but was very drowsy towards the last, and threw its arms about as a child does when restless. It died on the forty-fourth day after the birth.

I saw the patient once, on the twenty-seventh day, when I noted the following conditions:—

The child was small for its age; its lips and mouth were slightly, and but slightly cyanosed; elsewhere the complexion was good. Breathing short, high and frequent. On uncovering the trunk of the body, it was easy to observe that the act of inspiration lifted up the sternum and other regions of the thorax, whilst the lateral regions of the chest failed to expand at all scarcely, and the base of the thorax actually became smaller, giving to the waist of the infant the appearance of being drawn in circularly by some internal force, or of being driven in by an exterior pressure.

On percussion the chest was less resonant than natural, on both sides, but especially on the right; the percussion-sound was positively dull on the right side, both before and behind.

The vesicular murmur was puerile, except over the right side, where it was feeble.

Cardiac sounds decidedly louder at right scapula than over left. The cardiac impulse of the left nipple was very indistinct, and the sounds there feeble but natural. The natural tic-tac could be heard. On pressing two fingers lightly to the left of the ensiform cartilage, close to the costal cartilages, a very distinct and quite vigorous impulse could be felt, one much more distinct than at the nipple. At this point a distinct blowing sound attended the systole of the heart.

The diagnosis made at the time was: atelectasis of both lungs, of right greater than left; dilatation with hypertrophy of right ventricle, obstruction of the pulmonary artery, and open foramen ovale.

The action of the heart was regular, and the pulse frequent.

Autopsy.—Body quite small, not larger than that of many new-born children; very thin. Thorax arched at the sternum. Costal cartilages of right side thrust abruptly forwards at their points of junction with ribs, so as to give a deformed aspect to the right side of chest. Left costal cartilages also thrust forwards, but not to same degree as right. This peculiarity gave to the lateral regions of thorax a curiously flattened and contracted appearance. The base of chest was contracted in all its diameters, as though drawn or driven in.

On removing the sternum, the lungs were seen to be withdrawn from the

anterior portions of the thorax, so that the heart was almost entirely exposed. This withdrawal of the lungs was observed especially in regard to the lower lobes of both sides; these were quite hidden within the depths of the chest. The upper lobes, though small, were more fully in view and more filled out.

On taking out the lungs, they were seen to be very small. Their colour was, in general, quite too pale. Certain parts, to be referred to presently, were, on the contrary, of a dark livid or brown tint. The upper lobes, or at least the upper parts of the upper lobes, were crepitant and well expanded. The inferior lobes on both sides were small, and firmer and less crepitating than natural. The anterior halves of both lower lobes were firm, non-crepitant, and of a dark purplish tint, evidently quite without air. A pipe was passed into the trachea, and air driven into the lungs from the mouth. As the effort was made, it was interesting to see how rapidly and completely the whole of both organs rose to their full size. The dark, collapsed portions of the lower lobes, in particular, assumed apparently twice their previous size, changing their dark colour as though by magic, in exact proportion as they rose out into full size, under the influx of air, from a dull purple to a light pinkish hue, and becoming perfectly light and elastic. Not only, however, the inferior, but also the superior lobes became greatly expanded in volume, showing, by the contrast, how great had been the previous collapse of all parts of the lung-tissue, and suggesting instantly the thought that in their expanded state the lungs ought to receive a very much greater amount of blood from the heart than they could have received in their previously small and collapsed condition, and leading me to ask whether the imperfectly expanded lung-tissue of atelectasis might not itself be, in some cases, quite as powerful in preventing the emptying of the right ventricle as a contracted pulmonary artery, the most frequent lesion met with in fatal cases of cyanosis.

The heart, as it lay *in situ*, was unusually large for so small a child. I think I am safe in estimating it as one-half larger than it should have been. The whole organ was full, rounded, and all the cavities distended. The right auricle was particularly full, and very considerably larger than the left.

On opening the heart, all the cavities were found filled with soft black coagula, lying loosely amongst the tendinous cords and fleshy columns, but not adherent or strongly intertwined with them. They were all easily washed out.

The right ventricle was opened first. Its walls were very thick, and its cavity quite small. It presented the appearance we usually associate with the left ventricle. Its walls were thicker than those of the left ventricle.

The walls of the left ventricle were thinner than those of the right, and of about the thickness we might have expected to find them. Its cavity was much more capacious than that of the right. The auricles presented nothing unusual, except that, as above stated, the right was dilated so as to be considerably larger than the left. The foramen ovale presented an opening at its lower aspect of about two or three lines in diameter. The orifices of the venæ cavæ appeared smaller than usual.

The aorta and pulmonary artery were transposed. The aorta arose from the right ventricle in the usual position of the pulmonary artery; the pulmonary artery arose from the left ventricle, and, passing under the arch of the aorta, gave to the latter, just beyond the left subclavian, the ductus arteriosus, which was quite pervious, and of considerable size.

The valves of the heart were healthy, and not transposed, as has sometimes been found to be the case in hearts presenting transposition of the arteries.

Pulmonary artery of the natural size; no obstruction at its point of origin. After giving off to the aorta the ductus arteriosus, it divided, as usual, into two pulmonary branches, which soon subdivided into others.

The aorta was of the full size, and presented nothing unusual. It gave off at its arch the innominate artery, and then the left primitive carotid and the left subclavian. Just beyond the latter it received, from the pulmonary artery, the ductus arteriosus.

Pericardium natural and healthy.

Remarks.—The kind of malformation of the heart, of which this specimen is an example, is of less frequent occurrence than several others. Dr. Peacock, in his excellent lectures on the malformations of the heart, cites 16 examples of this particular kind, while he quotes 49 cases of contraction of the pulmonary orifice with imperfect septum cordis, and 12 of the same contraction with open foramen ovale. He also cites 20 cases of impervious pulmonary artery; 11 cases in which the heart consisted of only one ventricle with one or two auricles, and 5 cases in which the heart is said to have consisted of a single auricle and ventricle.

It will be remarked by all who have heard the report of this case, that the cyanosis, which is so generally looked upon as the one special symptom of malformation of the heart, was not very strongly marked. The symptoms were rather those of atelectasis, or imperfect expansion of the lungs, with the general debility and faulty nutrition usually attendant upon that state, than those of a very high degree of obstruction of the circulation. There was, at no time, that deep livid discoloration of the whole surface, which has given to this condition the title of morbus cærulens, nor did the child exhibit, except on one occasion, and then only for a short time, the convulsive phenomena which so frequently attend upon strongly marked cases of faulty and embarrassed circulation.

And yet, the circulation was in the highest degree defective. But for the permanence of the two fœtal characteristics, the foramen ovale and ductus arteriosus, we should have had the curious spectacle of the lesser and the greater circulations, the pulmonic and the systemic, going on in two constant rounds, without any communication. The systemic blood, brought to the right side of the heart by the venæ cavæ, instead of passing on to the lungs by the pulmonary artery to be revivified, would have returned at once to all the parts whence it had just arrived, through the aorta, which arises from the right ventricle. The pulmonic blood, arriving at the left side of the heart by the pulmonary veins, would have issued again, through the pulmonary artery which arose from the left ventricle, towards the parts it had just quitted; and, so, the tissues of the system at large would have been bathed in a constant stream of venous, whilst the capillaries of the lungs would have presented to the air in the air-cells naught but an arterialized blood. Every round of the systemic circulation would have brought to the expiring tissues a more unwholesome element, while to the air in the lungs would have been exposed at each circuit of the

pulmonic blood, a fluid so rich in its qualities as to need no longer that life-giving contact so essential in the normal condition of the body.

Extra-uterine life, under such conditions, would have been impossible for more than a very few moments. The infant must have perished after but a few inspirations.

But life was maintained for the long period of 44 days. And this only by the permanency, as mentioned above, of the two fœtal openings—the foramen ovale and ductus arteriosus. These two openings, instead of being hurtful, as might, upon a casual glance, seem probable, were, in truth, the only means by which a communication between the two circulations could be preserved. A portion of the systemic blood passed through the foramen ovale, to the left side of the heart, and thence to the lungs; of the oxygenated blood brought to the heart by the pulmonary veins, a part, at least, glanced off, through the ductus arteriosus, to the system at large. The foramen ovale becomes, so to speak, the pulmonary artery, and the ductus arteriosus assumes the office of the aorta.

. Let us consider, for a moment, the bearing of this case upon the doctrines of the causation of cyanosis, or the discoloration of the body in malformation of the heart.

Two theories, as is so well known, have divided authorities upon this matter: one is that the discoloration depends upon the admixture of the two kinds of blood; the other that it is the result of a stasis in the venous system from obstruction.

Amongst the advocates of the former theory may be cited Senac, Corvisart, Caillot, Labat, Bouillaud, and particularly Gintrac; whilst among those who adopt the latter opinion may be named Morgagni, Louis, Berard, Bertin, Ferrus, and Dr. Moreton Stillé, of our city. Of those who hold the latter opinion, allow me to say there is not one who maintains his opinion with greater success and ability than Dr. Stillé, whose inaugural essay is one of the most exquisitely complete monographs on a medical subject that I am acquainted with. It was published in the July number of the *American Journal of Medical Sciences* of the year 1844.

The opinion now generally held is, that the cause of the discoloration is stagnation in the venous system, from obstruction in the heart or lungs. Some, however, who maintain this view in great measure hold, nevertheless, that the mingling of the two kinds of blood assists in the production of the phenomena of the disease, by increasing the intensity of the discoloration. Dr. Peacock, whose lectures on malformations of the heart are invaluable for their ability and research, and who adopts the congestive theory, thinks that Dr. Stillé limits the cause of the obstruction too strictly to the heart and its great vessels, and holds that collapse of the lungs is sometimes a principal cause of obstruction in certain cases. I think, however, that Dr. Peacock somewhat misunderstands Dr. Stillé, for though the latter does not refer to collapse of the lungs as a cause, he expressly states

that he looks upon obstruction of the pulmonary artery as the *type* of the causative condition, and not as the only cause.

After these prefatory remarks, let us turn to the case before us. In this instance, the cyanotic hue, and the other symptoms of embarrassed circulation, were scarcely observed for several days after birth, and at no time did the child present the deep discoloration, the dyspnœa, or the convulsive phenomena which usually attend upon serious congenital malformations of the heart. And yet there must have been present, from the very moment of birth, and while life endured, a very great admixture of venous and arterial blood. The arch of the aorta contained almost purely venous blood. Unless, indeed, we suppose that a portion of the imperfectly arterialized blood of the ductus arteriosus retrograded along the aortic arch to reach the great vessels springing from that arch, we must suppose that the aorta at that point contained nothing but the blood which had already made the round of the systemic circulation. Whether we grant this or not, it is clear that in the descending aorta, the blood of the right ventricle must have commingled with that which arrived from the left ventricle through the ductus arteriosus. And, if we consider for a moment the state of things in the left side of the heart, we shall find that even here, there must have been admixture; for, in the left auricle, we have not only the decarbonized blood brought from the lungs by the pulmonary veins, but also a very considerable portion of the carbonized blood which had arrived in that cavity through the foramen ovale. Indeed, it was through the foramen ovale alone, that the venous blood was able to reach the lungs. We have, therefore, the curious condition of a left heart containing both blood just returned from the lungs, and blood from the systemic circle. This, pouring out into the pulmonary artery, passes into the systemic vessels, as the best which the body affords, and partly again to the lungs, to become again renewed; so that the admixture must have occurred in a very high degree, and yet there was a sufficient change effected in the lungs to prolong a low kind of vitality during the period of forty-four days.

We may conclude, then, that what cyanotic symptoms existed in this case, could not have depended on admixture of the two kinds of blood, else the symptoms should have appeared at the moment of birth, and should have been much more decidedly marked.

This leaves us only the other theory, that of venous congestion, by which to explain the cyanotic phenomena exhibited in the case.

That a condition of venous stasis existed in the case, is proved, in my opinion, by the following considerations:—

The blowing sound heard with the cardiac systole, during life, must have been, from its seat, the result of tricuspid regurgitation; the impulse of the right ventricle, as compared with that of the left, was abnormal in force, and presupposes some obstruction to the escape of the contents of the ventricle; the concentric hypertrophy, with the very small cavity of the right ventricle, point, also, to some obstacle resisting the escape of the blood

from the ventricle, and, lastly, the dilatation of the right auricle with the open foramen ovale, shows an unusual distension of that cavity, and a consequent repletion of the whole venous system.

We have now to determine what was the nature of the obstruction in the venous system, if an obstruction existed.

There was no contraction of the aortic, nor of the tricuspid orifice, to explain the venous stasis.

The atelectasis of the lung-tissue could not have acted directly upon the blood in the right side of the heart, as it does, I doubt not, where the pulmonary artery has its normal origin, since in this case that vessel arose from the left instead of the right ventricle, and any obstruction to the transit of the blood through the lungs must have reached upon the left ventricle, and could have affected the right ventricle and thence the venous system at large only secondarily, in the same way that the ordinary obstructive diseases of the left heart of the adult are known to affect the right heart through the medium of the lungs.

Where then was the seat of the obstruction which impeded the escape of the blood from the right heart, and thus gave rise to the cyanotic symptoms, if such can be found? I think it is to be found in the systemic capillaries.

It is a well established fact that the capillaries of the systemic circulation, like those of the pulmonic, resist the passage of a highly carbonized blood. This has been clearly shown by various experimentalists during their researches into the phenomena of asphyxia. Now, in the case before us the systemic capillaries could have received nothing but a very imperfectly oxygenated blood. As already stated above, the aorta, behind the ductus arteriosus, contained only venous blood which had already made the circuit of the system, while beyond that point, though it received from the duct a small accession of blood, a part of which had just returned from the lungs, the general mass of the blood in the descending aorta must have been venous, and therefore unfit to pass readily through the systemic capillaries. To this point, therefore, the systemic capillaries, I am disposed to refer the seat of that obstruction to the escape of blood from the right heart, which must have given rise to the venous stasis occasioning the but moderate cyanosis observed in this case.

A peculiar Fungus observed in Saccharine Urine.—Dr. James Darrach read the following paper on this subject:—

Fungi have been recognized growing in urine by many observers, and some writers have attached considerable importance to them as indicators of the existence of sugar in that fluid, while others ignore their value as diagnostic of this abnormal constituent. This difference of opinion arose no doubt from a very imperfect knowledge of the subject, as the following extracts indicate.

The first, from Dr. Golding Bird's work on the urine, is as follows:—

"When the urine contains but very small portions of sugar, too little even to

affect its specific gravity materially, or to cause it to assume a diabetic character, certain phenomena are developed, connected with the production of the genus torula or saccharomyces, which will at once point out the presence of sugar. These indications are of very great value."

The author further remarks:—

"When saccharine urine is left in a warm place, a scum forms on its surface, as if a little flour had been dusted upon it. This consists of minute oval bodies, which soon enlarge from the development of minute granules visible in their interior. These continue expanding, and dilate the oval vesicle containing them into a tubular form; soon afterwards the internal granules become larger and transparent, and project from the exterior of the parent vesicle like buds. The whole then resembles a jointed fungoid or confervoid growth, which ultimately breaks up, and a copious deposit of oval vesicles or spores fall to the bottom. All these stages of development require but a few hours for their completion."

The following is an extract from one of Dr. Bence Jones's lectures on the urine:—

"Torulæ are by no means diagnostic of saccharine urine; but though they form very soon and very plentifully in diabetic urine, yet they may constantly be found in urine which contains no trace of sugar; and though they may lead you to look for sugar, they must never lead you to assert that sugar is certainly present in the urine in which they are."

It would be impossible to discover what fungus Dr. Bird means, for his description might apply to the "*penicillum glaucum*" as to any other, and the figure of the plant which is found on page 279 (second American edition) does not relieve us from the difficulty; while there is no doubt in our minds that it is the penicillum to which Dr. Jones refers. And so far we agree with him, that this fungus is not to be taken as diagnostic of sugar in the urine, and that it grows in non-saccharine as well as in saccharine urine.

Dr. Hassall was the first to clear up the confusion on this subject by making known that there were two very distinct fungi which grow in the urine, one of which may be found in any acid urine, while the other is only seen in such as contains sugar. The former is the well-known "*penicillum glaucum*," while the latter is considered by Dr. Hassall as identical with the yeast fungus, formerly known as the torula cerevisiæ. I have not as yet been able to satisfy myself by personal observation with regard to this identity. Its aerial fructification certainly differs widely from the representations of the torula as exhibited in the works of the highest authorities. The uncertainty as to the genus of the plant, however, does not affect its value as a diagnostic sign, for any one who has seen the *sugar fungus*—as we shall call it—will have no difficulty in recognizing it as a distinct plant from the penicillum.

My attention was first attracted to the sugar fungus between four and five years ago; at that time I did not recognize it, though having taken a drawing of it, I have since been able to identify it with the sugar fungus of Dr. Hassall. I then saw the plant only in its stage of thallus or mycelium. Two years ago, while attending an old lady for fracture of the clavicle, I again had an opportunity of seeing it; and as the manner in which I was

led to observe it will serve to illustrate the practical nature of Dr. Hassall's discovery, I will briefly relate the details. While attending this lady for the fracture, she directed my attention to the fact that she had been compelled to pass her water more frequently than natural, often having to rise at night for this purpose. I immediately inferred that this condition was owing either to an abnormal condition of the urinary mucous membrane or to an irritating quality of the urine. I obtained a specimen of the urine, but did not examine it for two days, when I observed that it was filled by a dense cloudy microid mass. Microscopic examination exhibited that it consisted of the mycelium of what now I had become acquainted with—the *sugar fungus*. And although neither the quality nor the colour of the urine, nor the general symptoms of the patient had directed my attention to the existence of diabetes, I now felt certain of the presence of sugar in the urine; and this view was confirmed by obtaining a large quantity of it from another specimen of the fluid which I obtained subsequently, the sp. gr. of which was 1040.

The appearance of the *penicillum glaucum* is familiar to all. This fungus grows readily in any acid urine, and according to Dr. Hassall, more particularly affects albuminous urine; and he remarks that "it affords some indication of the amount of animal matter contained in acid urines."

It has three stages of development, spore, mycelium, and aerial fructification. To have the plant develop itself throughout all three stages the urine must remain acid. Often it will be observed to become arrested at its spore state or at the mycelium stage, and then desintegrate. This is owing generally to the fact that the urine though acid at emission has not remained so. The first two stages of growth are completed under the surface of the fluid; but the second, which consists in the production of straight upright filaments bearing at their extremities the bunch of spores is completed in the air.

The same steps of growth are observed in the development of the *sugar fungus*, and the same conditions are necessary for its growth, viz: oxygen, acidity of urine plus a saccharine material.

The difference between the two plants above mentioned will be better appreciated by an examination of the accompanying figures. The drawings were made with a power of about four hundred diameters, and exhibit sufficiently the distinction between these two fungi. Throughout all their stages this difference is manifest. The size and appearance of the spores and filaments of the mycelium differ greatly, and if doubt existed as to their being distinct species, one has but to examine them in their complete aerial development, when the round globular head of the sugar fungus and the irregular digital bloom of the penicillum no longer leave grounds for mistaking one for the other. I did not make accurate measurements of the plants, intending to do so on a future opportunity. Dr. Hassall gives the following measurements: The spores of the penicillum glaucum vary in size, "from the $\frac{1}{1778}$ of an inch in diameter to the $\frac{1}{11222}$ of an inch."

The sporules of the sugar fungus vary from the $\frac{1}{1900}$ of an inch in diameter to the $\frac{1}{628}$ of an inch. I have not pretended to give a full account of the development of these plants, but would refer those who are interested in the matter to Dr. Hassall's beautifully illustrated paper, in vol. xxxvi. of the *Medico-Chirurgical Transactions.*

Fig. 1.

Fig. 2.

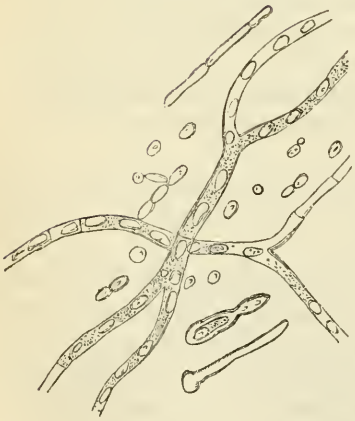


Fig. 3.

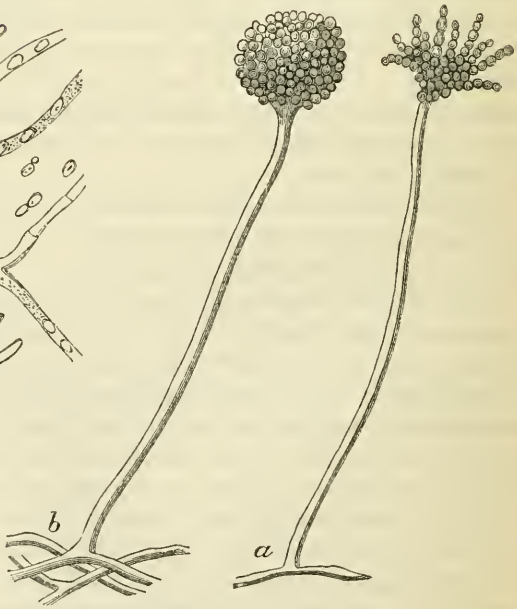


Fig. 1, represents the spores and mycelium of the sugar fungus.
Fig. 2, the penicillium glaucum in various stages of growth, from the spore to the mycelium.
Fig. 3, *a*, the penicillum, and *b*, the sugar fungus, in full aerial fructification.

REVIEWS.

Art. XIII.—*The Nature and Treatment of Gout and Rheumatic Gout.* By Alfred Baring Garrod, M. D., F. R. S., &c. &c. London: Walton & Maberly, 1859. Royal 8vo. pp. 601.

If we estimate the importance of a disease by the amount of attention given to its investigation, we cannot fail to award a high position to gout; for among those abnormal conditions of humanity which from the commencement of scientific medicine have engaged the thoughts and labours of physicians, we find the disorder in question studied with an enthusiasm and perseverance rarely given to the more humble infirmities to which the mortal frame is liable.

But a cause has existed (and, in a great measure, still exerts an influence) well calculated to attract the special attention of the scientific investigator to the study of gout, and this resides in the essential nature of the disease itself—its etiology, the protean forms of its attacks, its insidiousness, the obscureness of its pathology, and, above all, the obstinacy with which many of its phases resist treatment. Thus, in reference to this latter point, whilst it is doubtless true that an ordinary attack of acute gout may generally be made to disappear under appropriate treatment, it is nevertheless a fact that but little progress has been made during the last two thousand years in the rational management of either the chronic or rheumatic forms of the disease, and that, therefore, these varieties are almost as invincible as when Hippocrates lamented the inefficacy of all medical treatment, or Lucian, by citing satirically some fifty remedies from the animal, vegetable, and mineral kingdoms of nature, evidenced how little confidence he had in any of them as remedial agents.

For centuries the nature of gout was left to speculation, and it is only within our own time that any real advancement has been made towards a knowledge of its pathology. By establishing the fact that the seat of gout is essentially in the blood, a step has been taken in the right direction, the advantages of which we cannot refuse to acknowledge, perceiving, as we do, that practical results of the highest importance are likely to be derived from it.

Neither must we neglect to accord to Dr. Garrod the credit which is so justly his due for the prominent part he has taken in the scientific investigations which have thrown so much light upon a subject where not long since all was conjecture. For the past twelve years he has laboured with an assiduity worthy of the highest commendation, and although we must award to Strahl and Lieberkuhn the merit of having first detected uric acid in the normal blood of animals, the author of the treatise before us was undoubtedly far more successful in this line of research than the observers above mentioned, who failed altogether to discover the substance in question in human blood. We shall return to this subject in the course of our remarks, when we come to consider the pathology of gout.

The volume which we propose to notice is intended as a systematic mono-

graph on the disease which forms its subject, and therefore, unlike many of its predecessors, is not restricted to the dissemination of the peculiar views of its author, either as regards pathology or treatment. There is nevertheless sufficient originality about the work to distinguish it from mere compilations; and as the matter giving it this feature is both scientifically and practically of excellent quality, we are glad to recognize in the fruit of Dr. Garrod's labours a treatise deserving the highest commendation of the profession, a learned dissertation, a safe and perspicuous guide, and—what we are even somewhat disposed to regard as a still higher recommendation—a work containing many valuable suggestions for those who may be disposed to carry their studies in the same direction as the author. If, therefore, after what we have said, we should, in the course of our examination, find individual features in Dr. Garrod's book from which we should feel conscientiously bound to withhold our approval, we shall not, we trust, run the risk of being considered captious or hypercritical. It is impossible for an author to please every one, and perhaps even the identical statements and characteristics in the work before us, which we cannot receive or commend, may call forth the highest encomiums from some other critic, whose individuality is more consonant than our own with that of Dr. Garrod.

Passing over the first chapter of the work, which is devoted to the history of gout, and in which considerable literary research is displayed, we come to the second chapter, which treats of the acute form of the disease, as it ordinarily runs its course. We need not detain our readers with this portion of the treatise. We will remark, however, that Dr. Garrod's description of a paroxysm of gout is, as we had every reason to expect, exceedingly graphic. Scudamore's table relative to the comparative frequency with which different parts of the body are primarily affected is quoted. This table is based upon 516 cases of gout. Of this number, 341 cases occurred in one or both great toes alone, and 373 cases in the great toe and some other part. After the great toe, the ankle would appear to be next most liable, then the instep, next the outer side of the foot, and afterwards the knee. Dr. Garrod states that his experience enables him to confirm Scudamore's observations relative to the peculiar liability of the great toe to gouty attacks, a proclivity which is not, we believe, disputed. The chapter under notice contains the details of several cases in illustration of points of interest. The following we quote in full, because of its instructive character, and also because we have reason to believe the author's diagnosis was erroneous.

Speaking of the fact that occasionally genuine gout occurs primarily in some other part of the body than the great toe—this member remaining free from the disease during the whole course of the paroxysm—and of the great difficulty, in such cases, of forming a correct diagnosis, Dr. Garrod relates the following instance:—

"October, 1858.—H. P., a male, aged 38, came under my care in the hospital, on account of severe suffering in both ankles. It appeared, from the history of the case, that his father had been greatly afflicted with some joint affection, to such an extent as to cause him to be bedridden for sixteen years; it was considered to be rheumatism. The patient, when fifteen years of age, had an attack of what appeared to be rheumatic fever, affecting the wrist and other joints of the upper extremities; seven years after this first attack he had a second of similar character, but implicating the lower extremities also. From this time to his admission he had suffered at four or five different periods, the disease generally assuming a chronic form, and rendering him helpless for months. He cannot remember that the ball of the great toe was ever implicated. By occupation he is a cellarman, and is exposed to cold and damp; he takes on an

average, each day, at least four pints of pale ale or other malt liquor, and sometimes a considerable amount of wine. On admission both ankles were very painful and tender, but not swollen or red. He is unable to flex them, and the least attempt to do so is accompanied with much pain. The attack has been present three weeks, and at the commencement, from the patient's own account, the joints were swollen and red; pulse 72; tongue but slightly furred, and no thirst; appetite moderate; bowels regular; no perspirations. The pain in the joints was somewhat increased at night. The urine was scanty, sp. gr. 1030, giving rise to some crystalline deposit of uric acid on standing; no albumen present. As there was some doubt as to the real nature of the disease, about two ounces of blood were taken from the arm, and the serum exhibited the presence of a moderate amount of uric acid when treated by the thread experiment detailed in a subsequent chapter.

"A draught containing four grains of iodide of potassium in camphor mixture, was also prescribed, and middle diet ordered. Four days afterwards the patient remained in much the same state. The joints were somewhat relieved from the perfect quiet, regulated temperature, &c. It being found upon inquiry that the patient had usually taken pale ale in preference to porter, from considering it better adapted to his disease, and as he thought he felt more pain in his joints after taking stout, and moreover as the examination of the blood had shown the existence of an abnormal quantity of uric acid, I deemed it advisable, in order to arrive at a correct diagnosis, to see the influence of diet upon the patient, other circumstances remaining the same. For this purpose, as the appetite had become good, the extra full diet of the hospital was allowed, with the addition of two pints of porter, medicine being at the same time omitted. For the next four days all went on satisfactorily, but on the fifth he complained of severe pain, first in the right and then in the left ankle, which parts were soon swollen and red, and two days afterwards pitted freely on pressure, and gave rise to desquamation of the cuticle; the tongue was furred, pulse above 100, but no marked thirst. The porter and meat were then discontinued, and a draught containing half a drachm of colchicum wine in camphor mixture administered three times a day. Within forty-eight hours, the ankles were greatly relieved, and in a few days quite free from swelling or redness, and altogether in a much healthier state than since the commencement of the attack; the colchicum did not produce either nausea or looseness of the bowels.

"The peculiarity of this case, or what prevented the great toes from becoming affected, it is difficult to determine. May not the acute rheumatism in early life have left a certain amount of alteration in other joints, predisposing them to become subsequently affected by the gouty poison? We find that after accidents, and like causes, weakened parts are more susceptible to its influence.

"No deposits of gouty matter could be discovered, but the first phalangeal joint of the right little finger was flexed and almost anchylosed, whether or not by the deposition of urate of soda in and around the joint it is impossible to say. However, the character of the inflammation, the condition of the blood, the influence of diet, and the striking effect of colchicum upon the disease, can leave no doubt that the case was one of true gout, and there can be no reason why a patient who was in early life subject to rheumatic fever, should not acquire in after years the gouty diathesis."

We have said that we differed with Dr. Garrod in his diagnosis of this case, for after a full consideration of the phenomena, as he has described them, we cannot avoid regarding them but as belonging to rheumatism. Conceiving it of great importance that such doubtful cases should be thoroughly understood, and believing that nothing can be lost either to the science or art of medicine by submitting them to the most ample discussion, we are induced to touch upon the foregoing instance with somewhat more minuteness than under other circumstances we should devote to it.

The reasons which seem to have persuaded Dr. Garrod to regard the case quoted as one of gout are the following:—

1st. The presence of a moderate amount of uric acid in the blood.

2d. The character of the inflammation.

3d. The influence of a full diet in developing the disease.

4th. The curative effect of colchicum.

Perhaps we can best show the inconclusiveness of the chief of these supposed evidences by relating the particulars of a case which was recently admitted into the hospital under our charge. The case might perhaps be given more appropriately when we reach the chapter relating specially to the diagnosis between gout and rheumatism, but it is nevertheless so apposite to the points raised by Dr. Garrod in the case he has stated, that it can scarcely be regarded as out of place here.

M. H. entered the hospital February 6th, 1860, with acute inflammation of both knee-joints. The parts were much swollen, red, extremely painful, excessively tender to the touch, and pitted on pressure. Pulse 115 per minute, full but not hard, intermittent, and otherwise irregular. Complains of pain over the region of the heart, and palpitation of this organ. On auscultation a soft bellows murmur was heard synchronously with the systole of the heart. It was also audible over the carotids as high up as their bifurcation. Tongue coated, bowels regular, urine scanty and high-coloured, depositing a copious lateritious sediment on cooling; specific gravity 1029.50.

Patient at the time of his admission was thirty years of age, had been seven and a half years in the army, had served during this period at Fortress Monroe in Virginia, in Florida, Minnesota, and Michigan—passing thus from a climate almost tropical to one in winter of extreme rigor. Never had rheumatism before; never had gout, and so far as he is aware, none of his relatives have ever been affected with either disease. Habits irregular; drinks whiskey occasionally to excess, and generally when he can get it takes one or two drinks a day. Weighs about 140 pounds, and appears to be of good constitution. During the last two years, however, has been sick several times. In 1858, from August 7th to August 10th, and from August 17th to September 1st, was affected with boils. From November 13th to November 18th, was troubled with wandering pains in limbs, classed in the hospital register as chronic rheumatism. In 1859, was sick in hospital from February 25th to March 30th, with scarlatina, and from September 24th to September 30th, was again attacked with boils. Since this last date to the present time he has enjoyed good health.

The treatment in this case was as follows: Warm applications were made to the affected joints, a small blister was applied over the region of the heart, and there was administered to him, three times a day, a draught consisting of vini colchici sem. ℥ss; potassæ acetat. ℥ss; aquæ ℥ij. Liberal potations of infusion of flaxseed were also ordered. The diet consisted of tea and toast, with beef soup for dinner.

On the following day the pain and tenderness about the knee-joints were much relieved. The pain in the chest was also less, but the bellows murmur was still audible; pulse 90, full and soft; urine high-coloured, but much more plentiful than during the previous twenty-four hours. Bowels have been opened twice rather copiously. Continue draught, warm applications to knees, and diet.

About two drachms of serum were collected from the blister on the chest, and being treated in the manner recommended by Dr. Garrod, and submitted to microscopical examination, uric acid was found to be present in more than the normal amount, the thread passing through the liquid being covered with the lozenge-shaped crystals of this substance.

The case continued to progress favourably. On the 9th the bellows murmur was no longer heard. The swelling and pain of the joints had greatly decreased. It was, however, deemed advisable to continue the treatment a day or two longer. On the 11th the colchicum and acetate of potash were discontinued, and the tinct. ferri chloridi substituted. This was continued till the 20th, when the patient was discharged from hospital entirely well.

Now we think no one will be disposed to question the accuracy of the diagnosis made in this case, which was clearly one of acute rheumatism. The whole antecedents of the patient, aside from the phenomena manifested, evidently point that way, and yet we see that the main facts relied on by Dr. Garrod in the case quoted to indicate gout were present in this. The character of the inflammation was similar, there was an abnormal amount of uric acid in the blood, and the disease was cured by the administration of colchicum. The case was not one where the influence of diet could be brought to play so important a part in developing the disease as in Dr. Garrod's case, for we had no doubt as to its true nature from the first. Moreover, we cannot admit that the fact of a subacute inflammation becoming acute five days after the patient is put upon the extra full diet of an hospital, with the addition of two pints of porter daily is any definite indication of such inflammation being of a gouty character. Neither do we perceive that there is any necessary connection between the two circumstances, and to our mind to assume that there is, savors very much of the "*post hoc ergo propter hoc*" fallacy, which unfortunately is so often met with in medical writings.

We see too that the mere fact of uric acid being present in the blood in abnormal amount is not of itself sufficient to enable us to distinguish gout from rheumatism, and though we are ready to admit that such excess is much more frequently met with in the former than the latter disease, we are not prepared to agree with Dr. Garrod, that it is entirely confined to gout. In fact, we are enabled to assert that it is by no means a rare circumstance in undoubted cases of acute rheumatism, to find the uric acid in the blood augmented in quantity above the average normal standard.

Leaving for the present the further consideration of this part of the subject, we come to the third chapter of Dr. Garrod's treatise which relates to chronic gout.

The description given of this form of the disease is exceedingly accurate. Several interesting and instructive cases are given under this head which we regret not being able to quote at length. The nature and composition of the tophaceous deposits which occur about the joints and other parts of the body are next dwelt upon. After pointing out the erroneous character of the opinions held by the older physicians relative to these concretions, Dr. Garrod says :—

"The consistence of these chalk-like deposits varies extremely; sometimes they are quite soft to the touch, at other times almost as hard as chalk itself. In order to demonstrate their true character, we will examine them carefully in both conditions. A little white spot is observed upon the helix of the ears of patients suffering from chronic gout, and if such has been recently formed it gives rise, when punctured with the point of a lancet, to the exit of a semifluid cream-like exudation. This, covered with a film of glass, and placed under the microscope, exhibits the appearance seen in plate 5, fig. 3, and consists of a clear fluid containing a great number of acicular, or needle-like crystals; exceedingly small, and requiring some considerable magnifying power, and good definition to show them properly. With these crystals, a few blood-disks are frequently observed,

arising from the slight injury to the skin; these are shown in plate 6, fig. 5*a*. If a little of the white exudation be heated with a few drops of dilute nitric acid upon a porcelain dish, and when almost dry exposed to the vapour of ammonia, a beautiful purple colour is produced from the formation of murexide, or purpurate of ammonia. If the white matter be dried and incinerated, a little ash is left, alkaline in reaction, and exhibiting all the reactions of soda. Under polarized light, the appearance of the crystals is such as is seen in fig. 7.

"The white matter is soluble to some extent in hot water, and its solution on cooling or evaporation deposits needle-like crystals of urate of soda, usually arranged in balls or tufts (plate 5, fig. 4). If a concretion in a semi-solid condition be examined, the same appearance is exhibited, except that the crystals are more aggregated together in little masses of needles, sometimes difficult to separate from each other; this, however, can be effected by putting a drop of water upon the slide, and then using a little pressure with the thin upper glass. When the concretion is quite solid, by crushing a small particle and treating it as before, with water, a similar appearance is observed. These white deposits are thus shown to consist essentially, and often entirely, of urate of soda; but, when imbedded and hardened in any tissue, animal and earthy matters may become intimately united with them; these can be separated by treating the mass with hot water, which dissolves the urate of soda, but leaves the salts of lime, and animal matters. A small portion of the uric acid is now and then dissolved out, in combination with some potash or lime existing in the tissues, in the form of urates of these bases, but the amount of these salts is generally insignificant."

There can be no doubt as to the fact that these concretions in the main consist of urate of soda. This was first indicated by Tennant, in 1795, and not by Wollaston, in 1797, as Dr. Garrod seems to think. Since their observations, numerous analyses have been made by Fourcroy and Vauquelin, Marchand and others, with similar results. Our own experience, which has not been very extensive, has also led to like conclusions. In one case we found the urate of soda to amount to 49.72 per cent., and the urate of lime to 3.25 per cent., the uric acid, therefore, somewhat exceeding a percentage of 39.24. Herapath has found as much as 14.76 per cent. of urate of lime in these concretions, together with 43.97 of urate of soda, and Lehmann found this latter salt to amount to 52.12 per cent.

Along with the urates are found carbonate of ammonia, chloride of sodium, phosphate of lime, carbonate of lime, &c., in small amounts, and animal matter often in large amount. Dr. Garrod states that this latter is only present in limited quantity, but the analysis of Marchand, which he quotes, shows a percentage of 32.53 of this substance, and two analyses of John, to which he does not refer, gave 56.2 and 73.0 per cent. respectively of animal substance.

These concretions are more frequently met with on the ears than on any other part of the body, and on the upper than the lower extremities. So far as their occurrence upon the ears is concerned, but little attention has hitherto been given to the circumstance; but Dr. Garrod very properly directs special notice to it as in some cases a point of very considerable importance in forming a correct diagnosis. In thirty-seven gouty patients whom he examined with reference to the presence or absence of tophaceous deposits, it was ascertained that they were present in seventeen, and absent in thirty. In the seventeen cases where they were present at all, they occurred in seven cases on the ears alone, in nine cases on the ears and about joints, and in only one case were they found in other parts of the body without being detected on the ears. They are generally found about the fold of the helix; vary in number from one to ten, and in size from that of a pin's head, to that of a split pea. They resemble little pearls; possess a gritty

hardness, but are sometimes soft. When punctured, they give exit to a milky fluid, which when examined with the microscope, is seen to consist of innumerable acicular crystals of urate of soda floating in a colourless liquid.

The size and number of the concretions which occur in chronic gout are sometimes very great, and the most deplorable deformities are in consequence produced. Dr. Garrod details several interesting cases in illustration of these points. The cause of their deposition cannot be said to be clearly and thoroughly understood, but it doubtless depends essentially upon a mal-performance of the excretory functions of the skin or kidneys, or both. As a localizing cause, Dr. Garrod refers to injuries, and cites a case in which a large chalky concretion, the only one which could be discovered, appeared on the back of the hand of a gouty patient, and which was attributed by him to a blow which he had received in a scuffle.

The fourth chapter is devoted to the very important subject of the blood in gout, and contains the chief of Dr. Garrod's original contributions to the pathology of the disease. The healthy state of this fluid is first touched upon, and then the alterations induced by the affection or giving rise to it so far as they are known (and it must be confessed that here our knowledge is extremely limited), are next considered. Dr. Garrod proposes two questions as embracing the essential points of the inquiry.

"Do the normal constituents become altered in character? or are the matters naturally excrementitious retained in the fluid, thus influencing its composition?"

The globules are asserted not to be necessarily altered, and though in many chronic and asthenic cases they are notably diminished, this is assumed to be due more to the debility than to any specific effect of the gout. This is a point which it is manifestly difficult to determine with certainty, but so far as our experience goes, the red corpuscles are very perceptibly diminished, and the colourless corpuscles increased in number, not only in the chronic forms of the disease, but also during the paroxysms of acute attacks.

The augmentation in the quantity of fibrin, which is so common a concomitant of acute gout, is ascribed by Dr. Garrod entirely to the attending local inflammation. It is probable he is correct in this supposition, for as he says, and as we are able to confirm, in chronic gout the fibrin remains at very nearly its normal standard. A large number of analyses are necessary, however, before we can arrive at a definite conclusion on this point.

In regard to the serum, Dr. Garrod is of the opinion that in gouty affections the mean specific gravity is lower than in most other diseases; in fact, with the exception of albuminuria and scorbutus, he finds it lower than in all others. However, it frequently happens that in gout, occurring in robust men, the specific gravity is unaltered, and he therefore ascribes its elevation to defective nutrition or kidney disease supervening, in cases where the disease has lasted a long time. In his opinion, therefore, there is no direct connection between this phenomenon and gout. As to the opinion expressed that the albumen of the blood is never increased in quantity in gout, we think there is much to be said on the other side. We regret that Dr. Garrod has not given the detailed results of his observations relative to this point.

"Where, then" (says the author), "shall we discover the morbid changes of this fluid in gout, seeing the normal constituents are not necessarily modified? It is in the augmentation of those principles which exist in health in such minute traces as to be detected with difficulty that the peculiar alteration of the blood in this disease is manifested."

It is difficult to harmonize the two diametrically opposite opinions contained in the above extract. We cannot conceive why the fact of a principle being constantly present in healthy blood in small amount, should make that principle an abnormal constituent. Urate of soda, urea, and some other substances, are just as much normal constituents of the blood as albumen and others, with which we are, perhaps, more familiar.

Dr. Garrod states that he was first led to examine the blood of a gouty patient for uric acid in the summer of 1847. 1,000 grains of the serum were dried in a water bath, reduced to powder, and boiled with rectified spirit. After being thus exhausted, it was treated with boiling distilled water.

"When a few drops of the watery solution were evaporated almost to dryness with nitric acid, and held over the vapour of ammonia, distinct evidence of uric acid was afforded by the production of the beautiful purple tint of murexide or purpurate of ammonia; and when reduced to a thin syrupy consistence, and a few drops of hydrochloric acid added, and set aside, in a few hours crystals of uric acid were deposited with the characteristic forms of that body."

These observations were repeated by Dr. Garrod with uniform results, so that, in a paper communicated to the Medico-Chirurgical Society, and published in its Transactions, he was able to announce that "the blood in gout always contains uric acid in the form of urate of soda, which salt can be obtained from it in a crystalline state." Since that period to the date of publication of the present volume, from the examination of at least an hundred cases, the only alteration he would desire to make in the above opinion would be to append the words "in abnormal quantities."

The means which Dr. Garrod now employs to detect an abnormal amount of uric acid in the blood are such as render the examination an easy one in clinical practice; and though we are not disposed to attach quite so high an importance to this presence as does Dr. Garrod in distinguishing gout from rheumatism, yet, as the subject is otherwise of interest, we quote for the benefit of those of our readers who may not have access to the work before us, the details of the method recommended by the author.

* * * * * * "Take from one to two fluidrachms of the serum of blood, and put it into a flattened dish or capsule; those I prefer are about three inches in diameter, and one-third of an inch in depth, which can be readily procured at any glass house; to this add ordinary strong acetic acid, in the proportion of six minims to each fluidrachm of serum, which usually causes the evolution of a few bubbles of gas. When the fluids are well mixed, introduce a fine thread, consisting of from one to three ultimate fibres, about an inch in length, from a piece of unwashed huckaback or other linen fabric, which should be depressed by means of a small rod, as a probe or point of a pencil. The glass should then be put aside in a moderately warm place, until the serum is quite set and almost dry; the mantel-piece in a room of the ordinary temperature, or a bookcase, answers very well, the time varying from twenty-four to forty-eight hours, depending on the warmth and dryness of the atmosphere.

"Should uric acid be present in the serum in quantity above a certain small amount noticed below, it will crystallize, and during its crystallization will be attracted to the thread, and assume forms not unlike that presented by sugar-candy upon a string, as shown in plate v., fig. 5, *a*, *b*, *c*; when in the dark field under polarized light, it has an appearance represented in the wood-cut, fig. 10. To observe this, the glass containing the dried serum should be placed under a linear magnifying power of about fifty or sixty, procured with an inch object glass and low eye-piece, or a single lens of one-sixth of an inch focus answers perfectly. The uric acid is formed in the form of rhombs, the size of the crystals varying with the rapidity with which the drying of the serum has been effected.

and the quantity of uric acid in the blood. To insure perfect success several precautions are necessary.

"1. The glasses should be broad and flat; watch-glasses of the ordinary kind are not suitable, being too small, allowing the fluid to be frequently spilt, and also too much curved, causing the film of partially dried serum to curl up and split.

"2. The acetic acid should be neither very strong nor weak. The glacial acid often forms a gelatinous compound with the albumen of the serum, producing flakes; and very weak acid adds unnecessarily to the bulk of the fluid. By experience I find the ordinary strong acetic acid (about $\frac{3}{100}$) well suited for the experiment.

"3. The character of the thread and its quality are of some moment. Very smooth substances, as hairs or fine wire, but imperfectly attract the crystals; if the number or length of the fibres be too great, and the amount of uric acid small, the crystals become much scattered, and therefore but few appear in the field of the microscope. The glass should not be disturbed during the drying the serum, or the crystals may become detached from the thread.

"4. Some attention to temperature is necessary; if the serum be evaporated at a high temperature, above 75° Fahrenheit, for example, the drying may take place too rapidly to allow crystallization; the temperature of an ordinary sitting-room answers well for the purpose; it should be protected from dust.

"5. If the serum be allowed to dry too much before the examination takes place, the surface becomes covered with a white efflorescence consisting of feathery phosphates, which may obscure the thread, and which are represented in plate vi., fig. 4, *c*; they can be removed by the addition of a few drops of water before placing the glass under the microscope; sometimes over-drying causes the film to become cracked or fissured throughout, as well as covered with the phosphatic efflorescence.

"6. It is well, when practicable, to put up two or more glasses with the same serum.

"7. The blood should be recently drawn, or at least no change or decomposition should be allowed to take place in it before the experiment is made, for uric acid, when in contact with animal principles, is liable to undergo decomposition, as we shall subsequently have occasion to show."

From a series of experiments Dr. Garrod ascertained:—

"That an amount of uric acid equal to at least the 0.025 grain in the 1.000 grains of serum, in addition to the trace existing in health, is required before the 'thread experiment' gives indication of its presence, and hence the appearance of uric acid on the thread is complete evidence of an abnormal or morbid quantity in the blood."

We have carefully repeated these experiments, and have obtained almost identical results.

Then follows a table exhibiting the history and symptoms of forty-seven cases of gout, in all of which uric acid was detected in the blood in abnormal quantity. Numerous other examinations have been made by the author with like result, and our own experience, though not nearly so extensive as his, entirely supports the doctrine that the blood in gout always contains an excessive amount of uric acid.

Several other interesting points are discussed in this chapter, to which, however, owing to the length to which this review has already extended, we cannot make further reference.

The fifth chapter treats of the urine in gout. The first part is occupied with a description of normal urine, with which we need not detain our readers. One of the chief points to be considered under the head of the urine in gout, and which Dr. Garrod next proceeds to discuss, is whether or not there is an increased elimination of uric acid compounds in the disease. Many have taken the affirmative side of the question, among

whom we may mention the late Dr. Golding Bird; whilst others, including our author, deny that there is any such augmentation.

It is undoubtedly true that there is frequently—in fact we may say generally—a deposit of urates from the urine of gouty patients, but this fact is far from being any proof that these substances are in excess. The admirable researches of Lehmann and Scherer—to which, however, Dr. Garrod does not allude—furnish us with much valuable information on this subject. From these observations it is rendered extremely probable that to an alteration in the coloured extractive matter of the urine—in which the urates are very soluble—is due their precipitation, even in urine in which these principles are present, but in small quantity. Dr. Bence Jones has also shown that a very slight increase in the acidity of the urine will cause the precipitation of uric acid compounds even when they exist in the excretion in quantity far below the average.

From a number of observations Dr. Garrod arrives at the conclusions that in acute gout there is no increase of uric acid in the urine, but on the contrary frequently a diminution; that in chronic gout it is very much diminished, and that in those persons who have suffered from repeated attacks, but whose urine was examined during the intervals of health, there was no increase in any case, and in the majority was far below the normal standard.

The urine in chronic gout is also generally albuminous, and when examined microscopically is frequently found to contain casts of the renal tubes, consisting of disintegrated epithelium, a fact indicative of kidney disease. In the more advanced stages these are replaced by others of a waxy or fibrinous nature, and then we always find serious pathological changes in the structure of the kidneys.

The sixth, seventh, and eighth chapters, which relate to the morbid anatomy and causes of gout, we are reluctantly compelled to pass over. These chapters contain much instructive matter, and are moreover well illustrated with coloured lithographs and wood-cuts of morbid appearances.

The ninth chapter treats of the pathology of gout. As Dr. Garrod remarks, those who have perused the preceding chapters cannot have failed to perceive that a very intimate connection exists between uric acid and the disease in question. He then proceeds to give a sketch of the nature and composition of this acid, with its relations to the healthy organism under varied normal conditions. There are no original observations relative to these points, and with many recent investigations having direct reference to the subjects discussed, Dr. Garrod does not appear to be acquainted.

The views of the ancients and of several modern physicians are given relative to the pathology of gout, and then the author proceeds to state clearly and succinctly his own views. The essential points of these are as follows:—

1st. That uric acid is invariably present in the blood in gout in abnormal quantity.

2d. That in true gouty inflammation urate of soda is always deposited in the inflamed part.

3d. The deposit is crystalline and interstitial.

4th. The deposited urate of soda may be looked upon as the cause, and not the effect of the gouty inflammation.

5th. The inflammation of gout tends to the destruction of the urate of soda in the blood of the part, and consequently of the system generally.

6th. The kidneys are implicated in gout; in the first stages functionally, in the latter stages structurally.

7th. An impure state of the blood, arising principally from the presence of urate of soda, is the probable cause of the disturbances which precede the seizure, and of many other anomalous symptoms to which gouty subjects are liable.

8th. The causes which predispose to gout, independently of those connected with individual peculiarity, are either such as produce an increased formation of uric acid in the system, or which lead to its retention in the blood.

9th. The causes exciting a gouty fit are those which induce a less alkaline condition of the blood, or which greatly augment the formation of uric acid, or such as temporarily check the power of the kidneys for eliminating this principle.

These propositions are then considered at length separately, and much cogent reasoning adduced in their support. We cannot, however, stop to discuss them with the author, though it would be an easy task to refute many of them. The fourth proposition, which is one of the most essential, is by no means established to our satisfaction, and we may say the same of the seventh, eighth, and ninth.

The fact now universally admitted, that uric acid may exist in excess in the blood without being accompanied by gouty inflammation, shows at least that some other condition must be present, if it is not an insuperable objection to Dr. Garrod's views. There are many difficulties connected with the subject which we think the author clearly perceives and which doubtless prevent him insisting very strenuously upon the establishment of his theory.

The tenth chapter is devoted to the general treatment of the disease, and the eleventh chapter mainly to the consideration of the therapeutic action of colchicum.

Dr. Garrod devotes considerable space to this division of his subject. In regard to the action of colchicum, whilst admitting and even contending for its great value in the treatment of gout, he entirely denies that it is beneficial by reason of inducing an increased elimination of uric acid by the kidneys. The experiments which he has adduced in support of his views are certainly not such as we have reason to expect at the present day when every circumstance capable of influencing a result is taken into account by the practical physiologist. Thus, although it is stated that the diet remained the same both before and after the administration of the colchicum, nothing is said in regard to the physical exercise, so important a factor in investigations of this character. Again, it must be recollected that Dr. Garrod's experiments were all performed upon invalids, some of them even suffering from gout at the time. This circumstance should of itself be sufficient to invalidate his conclusion. Then, too, in the third case which he gives, there was an increased elimination of uric acid under the action of the colchicum, to the extent of over one-third, but Dr. Garrod gets over this inconvenience by the assertion that this is not more than frequently occurs in patients under like circumstances (*i. e.* recovery) when no medicine has been taken. This may be correct, but such cases at least show how important it is that the physiologist who desires accuracy in his investigations should perform his experiments upon persons whose health is not undergoing a marked alteration from day to day.

The only solid constituent of the urine, to which Dr. Garrod's experiments relate, is the uric acid, except in the fifth case, when the urea was also

determined. No other solid constituent, organic or inorganic, was taken into account. In the experiment referred to, the average amount of urea excreted in 24 hours before the administration of the colchicum was 223.6 grains, during the administration 244 grains, and after 236.4 grains, and yet with apparently considerable self-complacency, he states as the second of his conclusions: "That from the observations above detailed, we cannot assert that colchicum has any influence upon the excretion of urea, or the remaining solid portion of the urine." We are perfectly willing to admit this, for his experiments prove nothing whatever on the subject. It is true that the specific gravity of the urine is given in all the experiments, but we can hardly suppose that Dr. Garrod would be willing to form an opinion as to the relative amount of each individual constituent present in a specimen of urine from the mere determination of the specific gravity.

Now we do not wish to be understood as contending that colchicum does increase the amount of uric acid eliminated by the kidneys. Dr. Garrod's view may be correct, but we do not think he has proved it. We do say, however—and we say it as the result of numerous experiments, some of which have been already published, but of which Dr. Garrod does not seem to be aware—that colchicum when given to healthy men or animals, does increase the total amount of solid matter, organic and inorganic (especially the former) excreted by the kidneys; and we believe that it is curative mainly by this power of removing from the blood some principle or principles, which when retained in sufficient quantity produces gout or rheumatism, according to various predisposing causes. Our experiments may be fallacious, but until the fallacy is shown we must be excused for preferring to abide by them.

We should be glad to enter more fully into this portion of the subject, but the fact that our remarks upon Dr. Garrod's book have already extended far beyond the limits we had originally contemplated, must be our excuse for deferring what further we have to say to some other time.

In the twelfth chapter the treatment of chronic gout is considered. The phosphate of ammonia first recommended to the profession by Dr. Thomas Buckler, of Baltimore (see No. of this Journal for Jan. 1846), is extolled as a valuable agent, as are also the salts of lithia, especially the carbonate. All these substances possess considerable solvent power for urate of soda.

The thirteenth chapter relates to the treatment of chronic gout by the various mineral waters of the continent of Europe, and of England. Dr. Garrod does not, upon the whole, appear to think very highly of their influence.

The fourteenth chapter refers to the various forms of irregular gout. We find, however, no mention made of the gouty testicle of which we have seen two cases, and which we believe is also referred to by Wendt.

In the fifteenth chapter rheumatic gout and the means of diagnosing gout from rheumatism are considered. Dr. Garrod admits that the separation of the two diseases is frequently a difficult task, but entirely denies that they are ever blended. He lays considerable stress upon experiments by which he satisfied himself that uric acid is never in excess in the blood of patients affected with rheumatism. We have seen that it always is in gout. Dr. Garrod cites thirty-five cases of rheumatism, in none of which did the condition exist. This is very strong evidence, but as we have found it present in similar cases by Dr. Garrod's own method of determination, we may be pardoned for considering our evidence still more weighty.

We must now conclude our remarks on the book before us. There are

still several interesting and important points which we should like to discuss, but we must defer them to some other time, when we hope to present our views of both gout and rheumatism more fully and prominently before the profession. In conclusion, we would say, that whilst there are many opinions expressed in Dr. Garrod's treatise to which we cannot give our sanction, it is nevertheless, upon the whole, in our estimation, as we have already said, the most complete work which has yet appeared on the subject.

W. A. H.

Art. XIV.—*On Obscure Diseases of the Brain and Disorders of the Mind: their Incipient Symptoms, Pathology, Diagnosis, Treatment, and Prophylaxis.* By Forbes Winslow, M. D., D. C. L., Oxon. Philadelphia: Blanchard & Lea, 1860. 8vo. pp. 576.

In our review of Bucknill & Tuke (in the October number of this Journal for 1858), we descanted on the importance of a knowledge of what may be termed the psychological part of medicine. We know of no book which more impressively enforces the views which we then presented than the one before us. It does so more than the work of Bucknill & Tuke, because it treats not only of insanity, but more or less of all the diseases to which the brain is liable. As the brain is the organ of the mind, not merely the medium of its communication with external things, but an organ upon which it is dependent even in its internal working, that of thought and emotion, during its present state of connection with the body, the diseases of this organ, of whatever nature they may be, present in their symptoms mental and bodily manifestations variously mingled together. In this they differ from the diseases of any other organ in the body, for though in the latter there may be mental symptoms, they are incidental, and to some extent remote, being the result of the sympathy of the brain with other organs.

The mingled mental and physical symptoms produced by diseases of the brain, sometimes strangely deficient, and often exceedingly complicated, require great watchfulness and study on the part of the physician. They are, for obvious reasons which we need not stop to state, involved in much more obscurity than other diseases, especially in their beginning. It is to throw light on this obscurity that the book before us was written, and well has our author performed his duty. He has not merely given us the conclusions to which he has come, and the reasonings which have led him to them; but he has accumulated in this volume a wonderful mass of facts from his own experience and that of others, and almost every point is abundantly illustrated by facts. The whole together makes one of the most interesting as well as valuable books that we have seen for a long time. Its sprightliness, its happy arrangement of topics, its abundance of facts, and its free and for the most part just comments on them, make the book truly fascinating. Its value as a record of experience is much enhanced by the full table of contents, and the copious index. The practitioner who wishes to consult it in reference to any cases that he may have on hand, will find these to be great conveniences.

We do not mean to say that the book is a perfect one. The style is often too diffuse, and there are repetitions which care and precision might

have avoided, to say nothing of some inaccuracies here and there. There is sometimes a lack of accurate discrimination, and occasionally topics and cases are introduced in the wrong connection, or at least having so slight or remote association with what precedes and follows as to seem inappropriate to the place which they occupy. These faults, however, are so small in comparison with the excellencies of the book, that we do not hesitate to recommend it to the profession as an exceedingly valuable work.

It seems that this book is preliminary to another in which it will be the object of the author "to enter more elaborately into detail, and to point out, as far as practicable, the diagnostic premonitory signs of the various organic affections of the encephalon." We shall hope, therefore, to see more thorough discrimination exercised in that book than we see in this. We shall hope then to have more clearing up of that grand difficulty in the investigation of diseases of the brain which results from the fact, that many of the symptoms, especially at the beginning, are often found to be "common to several lesions of this organ, each presenting an essentially different *aggregate* group of symptoms, as well as distinctive anatomical and pathological phenomena."

It is a prominent design of this work to point out the symptoms, both mental and physical, which mark the beginning of disease of the brain, and which are ordinarily termed premonitory. The author believes such symptoms to exist much oftener than is supposed by the profession generally. On this point he states briefly some cases of various forms of disease in which the attack was hidden and was said to be without any premonitory signs, and then puts in relation to them the following inquiries:—

"Fully recognizing the obscurity in which this subject is involved, I would ask, whether the affections of the brain, in the majority of cases, are not preceded by a well-marked, clearly defined, but often undetected and unobserved precursory stage? Is it possible for a person to be suddenly laid prostrate in the arms of death by an attack of apoplexy, cerebritis, meningitis, paralysis, acute softening, or mania, evidencing, after death, long-existing chronic alterations in the cerebral structure, without having exhibited, for some time previously, faint and transitory they may be, but nevertheless decidedly characteristic symptoms, pointing unmistakably to the *brain* as the *fons et origo mali?*[1]

"Is not the alleged absence of all premonitory symptoms more *apparent* than *real?* Would not the history of the antecedents, the pre-existing pathological state of these cases, if carefully unravelled and cautiously analyzed, afford conclusive, if not demonstrative evidence of a prior state, of undetected and unrecognized brain disorder?"

He then states the matter more circumstantially, thus:—

"A man dies of what is termed a *sudden* attack of cerebral hemorrhage, or

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[1] "I freely realize the fact, that in many cases of sudden death the heart is *primarily*, and the brain *secondarily*, affected. This will account for the absence of all morbid conditions of the brain in many cases of death from what is termed apoplexy, associated with appreciable organic diseases of the heart.

"It is often a difficulty to decide, in cases of sudden death, conjoined with head symptoms, what proportion of the fatal issue is attributable to the heart and what to the brain. If the former organ be examined after death, and the slightest alteration is detected in its structure, the conclusion drawn is, that this is the cause of death, even although the vessels of the brain may be discovered in a condition of great turgescence. Under such circumstances, we have no right to infer, that the brain has had nothing to do with the death, merely because the heart is found either in a partial state of disease, or weak, small, and flabby in its condition. It would be safer, under such circumstances, to conclude that death has been caused by the combined effect of disorder in both organs."

acute softening of the brain. The *post-mortem* examination reveals a state of serious organic change in the structure of the brain, which, from its anatomical character, must have been of long duration, and of slow and progressive growth![1] The bloodvessels in the head are found in a state of fatty degeneration, or the seat of atheromatous deposits. A scirrhous tumour of some magnitude is discovered imbedded in the substance of the cerebral mass, the consequence of an injury inflicted upon the cranium some years previously. An encysted abscess is detected in the head, evidently not of recent origin. There may exist an aneurismal tumour connected with one of the cerebral arteries, a considerable thickening and opacity of the membranes enveloping the encephalon, or dipping down between its *sulci*, or, an extensive pulpy disorganization of the brain, involving a large portion of its hemispheres.

"It is not logical, upon *à priori* reasoning, to conclude, that such a degree of fatal organic lesion, so serious an amount of positive structural disease of the brain, could have been developing itself for *months*, and, in some cases, for *years*, without impairing, deranging, disturbing, or modifying the recognized and admitted psychical, motorial, and sensorial functions, of the cerebro-spinal system. Has the intelligence in such cases been intact, the volition unenfeebled, the emotional powers in a sound state, the brain free from all symptoms of *physical* as well as *psychical* disturbance, the cerebral circulation (as respects the *quantity*, *quality*, and *momentum* of the blood sent to the brain) proceeding in healthy integrity; the sensibility natural, the organs of special sense, viz: *sight*, *smell*, *hearing*, *taste*, and *touch*, in a normal state of activity; the life of relation, as well as the phenomena of nutritive and organic life, free from all signs of morbid derangement?

"It is generally admitted, that no structural changes can originate in the heart, lungs, liver, stomach, uterus, kidneys, or bladder, without presenting, prior to death, obvious symptoms of their existence.

"Tubercular disease of the lungs, hydatids of the liver, cancer of the uterus, calculus of the bladder, fatty degeneration of the kidneys, hypertrophy and valvular disease of the heart, cannot (in the majority of cases) exist without manifestly, and often seriously, disturbing the special functions of these organs. Upon what principle should the brain be an exception to the general pathological and physiological laws, regulating other organic structures?"

The conclusion to which our author comes is thus definitely and strongly stated:—

"The affections of the brain have, I maintain, undoubtedly a premonitory and precursory stage. In the majority of cases, the mischief established within the cranium, disorganizing the delicate tissue of the brain, may, upon careful examination, be detected. There are pathognomonic and diagnostic precursory signs, which serve to guide the inquiring, diligent, observant, and intelligent eye of the practical physician, and enable him, with some degree of certainty, to discover the first scintillations of brain disease, even when the patient and those about him repudiate all idea of cerebral ill-health, and refuse to acknowledge the necessity for medical advice or treatment."

We have made these free extracts because we deem the subject to be one of very great importance. If Dr. Winslow be correct in his conclusion, the profession at large are very much at fault in their investigations of diseases of the brain, and physicians ought to see the coming evil in vastly more cases than they do, and take measures to prevent it. The more obscure are the signs of disorder, the more on the alert should the physician be to detect them. And he should not limit his efforts to those cases which are distinctly placed under his care. From the fact that the beginnings of the maladies of the brain are often, for the most part, concealed from the

[1] "In another work will be detailed several remarkable illustrations of fatal disease of the brain, the origin of which could be traced back for long periods, in one case for *forty* years!"

non-professional observer, and even from the professional observer when he is inattentive, there rests an imperative obligation upon every practitioner, to watch carefully all members of the families in which he attends, who have any liability to disease of this organ. If he recognizes this obligation, and performs his duty, he will have the satisfaction of saving every now and then a life valuable to some family, and perhaps to the whole community, and of preventing some from passing into hopeless insanity or imbecility by arresting the violence which over-effort or worrying care is doing to the delicate tissues of the brain.

Especially is what we have just said applicable to the commencement of insanity. Many of its forms are not recognized by the non-professional observer, until the malady has been so long continued, and has acquired so much strength, that it is almost, if not quite, incurable. Cases illustrating this have occurred in the experience of every practitioner. And yet there is no disease in which early treatment is more important. While it is estimated, as stated by our author, that seventy, if not eighty, per cent. of the cases of insanity, admit of an easy and speedy cure if treated early, provided there be no strong constitutional tendency to the disease, or malformation of the head; yet from the neglect of early treatment, consequent upon the failure to recognize the existence of the malady, a very large proportion of the cases under actual treatment prove to be incurable. On this point, for example, Sir William Ellis, superintendent of the Hanwell County Lunatic Asylum for 1833, states that, "on a most careful personal examination of each of the 558 cases now in the house, there do not appear more than 50 who, under the most favorable point of view, can be considered curable." Other statements might be cited of a similar character. The result, be it remembered, is not to be attributed alone to the blindness of the community in regard to insanity. Our profession itself has been more or less blind on the subject. Most medical men have paid too exclusive an attention to the physical part of medicine, to the neglect of the psychological, as we pointed out in our review of the work of Bushnill and Tuke. Though there is an improvement in this respect since such statements as that of Sir William Ellis were made (nearly thirty years ago), the profession have by no means yet fully come up to their duty. Many a patient is shut up with incurable insanity in some asylum, who might have been restored to sanity, and usefulness, and happiness, if the attending physician of the family had performed that duty towards him which the relation that he sustained to him imperatively demanded. We speak strongly on this point, for we have fresh in our recollection many cases in which the practitioner's neglect of his plain duty, from ignorance or indifference, or both, consigned patients to incurable insanity, and in some cases to years of untold mental suffering.

The author, in conformity with the three great functions of the cerebro-spinal system, thought, motion, and sensation, considers his subject under three heads: 1. Morbid phenomena of intelligence; 2. Morbid states of motion; 3. Morbid conditions of sensation. By far the largest part of the book is occupied with the discussion of the first topic, under various heads of a subordinate character. Before entering on the discussion, he notices cursorily various interesting points, raising many questions as to the nature of mind, its connection with the body, the nature of insanity, &c. Most of these cannot be answered, and our author wisely declines to attempt it. If some others had been as wise, we should have been saved a great deal of useless and bewildering speculation, and the profession would undoubtedly

have had at this present time a much clearer idea of what has actually been ascertained in regard to the mysterious connection of the mind and the body. In this chapter the analogy between insanity and dreaming is developed in a very interesting manner, and the dream of Count Lavalette is related, as illustrating the rapidity and automatic character of mental action in dreaming, two points in which, among others, the resemblance is traced.

"'One night,' he says, 'while I was asleep, the clock of the Palais de Justice struck twelve, and awoke me. I heard the gate open to relieve the sentry, but I fell asleep again immediately. In this sleep I dreamed that I was standing in the Rue St. Honoré, at the corner of the Rue de l'Echelle. A melancholy darkness spread around; all was still. Nevertheless, a low and uncertain sound soon arose. All of a sudden I perceived, at the bottom of the street, and advancing towards me, a troop of cavalry; the men and horses, however, all flayed. The men held torches in their hands, the flames of which illuminated faces without skin, and with bloody muscles. Their hollow eyes rolled in their large sockets, their mouths opened from ear to ear, and helmets of hanging flesh covered their hideous heads. The horses dragged along their own skins in the kennels, which overflowed with blood on both sides. Pale and dishevelled women appeared and disappeared alternately at the windows in dismal silence; low, inarticulate groans filled the air, and I remained in the street alone, petrified with horror, and deprived of strength sufficient to seek my safety in flight. This horrible troop continued passing in full gallop, and casting frightful looks on me. Their march, I thought, continued for five hours, and they were followed by an immense number of artillery wagons, full of bleeding corpses, whose limbs still quivered. A disgusting smell of blood and bitumen almost choked me. At length the iron gate of the prison, shutting with great force, awoke me again. I made my repeater strike; it was little more than midnight, so that the horrible phantasmagoria had lasted no longer than *ten minutes;* that is to say, the time necessary for relieving the sentry and shutting the gate. The cold was severe, and the watchword short. The next day the turnkey confirmed my calculations. I, nevertheless, do not remember one single event in my life the duration of which I have been able more exactly to calculate.'"

A chapter on the statements made by patients in regard to themselves, after recovery from insanity, is both interesting and instructive on the whole, although we think it would have been well to have excluded the very long account of one patient, covering over forty pages. A very strange account it is, but there is little of practical value to be learned from it.

One of the best chapters in the book is that on anomalous and masked affections of the mind. Not only is insanity masked in a large proportion of cases in the beginning, but in some cases it is very difficult to detect it when it has been going on for some length of time. In some cases concealment of the insanity is practised by the patient when investigation is set up, thereby adding often materially to the difficulty of proof. In illustration of this, Dr. Winslow gives the following case:—

"A few years back I received a summons from a London police magistrate, to examine a case of alleged insanity. It appeared that a labouring man had committed several serious assaults, and was consequently arrested by the police. This man was examined by a medical gentleman, who said he had no doubt as to his insanity, without, however, being able to assign sufficient reasons for such an opinion. The magistrate had, on more than one occasion, himself investigated the case, and had taken the evidence of the surgeon referred to, but could detect no insanity in the prisoner's appearance or conversation. The medical gentleman asserted it to be his belief that the prisoner was insane, basing his conclusions upon the man's apparently unreasonable conduct, and mad acts of motiveless violence. I examined the prisoner publicly in court, and it was not until after the expiration of nearly three-quarters of an hour, that I obtained a key to the actual state of his mind. I then discovered that he was unequivocally insane.

He was under the delusion that a stranger having evil designs upon his life, was in the habit of placing daily a small pill upon the mantel-piece of his bed-room; that this pill (which he was compelled to swallow) contained an ingredient that greatly excited him, destroying all power of self-control, and leading him to commit the acts of violence of which he stood charged. His insanity then became obvious, and the magistrate signed a warrant for his committal to an asylum. It appeared that this insane man had been severely punished on previous occasions for different acts of unexplained violence, no one suspecting the existence of mental disorder. It was not until I had subjected him to a close and rigid examination for nearly three-quarters of an hour, during which the lunatic showed extraordinary ingenuity in concealing his delusion, and great cleverness in fencing with my questions, that I could establish, with satisfaction to myself, the presence of an insane idea."

In endeavouring to settle the question of insanity in doubtful cases, it will help us much if we bear in mind distinctly that insanity is truly a bodily disease. Let us not be misunderstood. We do not mean that in every case of insanity there is such disease of the organization that it could be made obvious by the dissecting-knife, should death occur. Its trace may perhaps sometimes be so slight or so evanescent that not even the microscope could reveal it. Our idea is that insanity cannot be predicated of spirit alone, unconnected with a material organization, and that it is by virtue of this connection that insanity results. It is on this ground that we make the distinction between insanity and those mental states which result merely from bad habits of mind, either intellectual or moral. There is difficulty, it is true, in carrying out this distinction; and yet it is only on this basis that the question can be settled. In all those cases where it cannot be carried out satisfactorily, we must consent to remain in doubt, and wait for further light. This view of the subject, which we deem to be quite material, is not brought out by our author. Indeed, it is doubtful whether he has distinctly taken this view of it, for although he speaks of "molecular modifications in the delicate vesicular neurine of the brain" as existing in obscure cases of insanity, yet he uses such expressions as "deviations from cerebral or mental disorder," as if the disorder in this disease need not always be cerebral, but may sometimes be simply mental, independent of any affection of the organization.

Valuable as are the facts collected by our author, and the comments which he makes upon them, we think his views are sometimes rather loose. Take, for example, the following passage:—

"I presume it to be a generally admitted axiom that the mind may be *disordered* without being *insane*, using this phrase in its strictly legal acceptation. These conditions of morbid intellect may be considered by some as only degrees of *insanity;* but I would suggest that this term be restricted to those mental disorders, accompanied with positive loss of control, clearly justifying the exercise of moral restraint, and to those morbid conditions of the intellect which sanction an appeal to the protective influence of the law. In other words, I would confine my remarks to those cases in which the mind may be said to be *pathologically* disordered, but not invariably *legally* insane."

This is as if there were a sort of middle ground between sanity and full insanity. We do not admit this at all. There are varieties and degrees of insanity, and the milder forms and the lesser degrees fill up really this supposed middle ground, as is hinted by Dr. Winslow to be the belief of some. Real "pathological" disorder of mind is insanity, and nothing else, and so it should be called both in law and in medicine. And no matter what is the degree or the form of insanity, the patient should be put under either moral or legal restraint, or both, just so far as his good and the good

of others require it. The question is not what is the degree of insanity, but whether its character is such that it requires the kind of restraint that is contemplated. Restraint against the commission of violence is not required where there is no danger of its commission. So, too, restraint from the management of property is not called for when the insanity is such as not to prevent the patient from managing it aright. These are illustrations of a simple principle which is very often disregarded.

This same principle should be kept in view, in deciding upon the moral character of the acts of the insane. The bare fact that a man is insane, does not, as a matter of course, absolve him from all moral responsibility. The question in regard to any act committed by him is, how far was it produced by his cerebral disorder. Perhaps it was wholly—then he is guiltless. Perhaps in part—in that case the guilt is lessened just in proportion to the amount of agency of the insanity in the production of the act. Perhaps not at all—here the guilt is as great as it would be if he were perfectly sane. To make this last point clear, we will suppose a case. Here is one of those strange but well-vouched cases of insanity, in which there is only a morbid propensity to steal. Such a person may commit homicide from revenge and anger, just as a sane person may do, without any influence from his insanity, and therefore should be treated as guilty to the full of the crime. As to the second point, the mixed sane and insane character of many acts opens a subject which calls for a wide and thorough investigation on the part of the experts who are in the habit of testifying in our courts, in regard to acts committed by persons supposed to be insane. And if our views be correct, there is need of some new laws to reach the necessities of the mixed cases referred to. We would like to dwell upon this subject, but it would make this article too long; and we shall accomplish our object, if the investigation which we suggest be prosecuted by those to whom it properly belongs.

The distinction at which Dr. Winslow aims in the passage last quoted, is shown to be not only impracticable, but wrong by some of the very cases of latent insanity, as he terms it, which he cites in illustration of his point. For example, take the following:—

"The party may be an unrecognized monomaniac, and, acting under the despotic influence of one predominant morbid idea, be bringing destruction upon his home and family. His feelings may be perverted, and affections alienated, thus engendering much concealed misery within the sacred circle of domestic life. His conduct may be brutal to those who have the strongest claims upon his love, kindness, and forbearance, and yet his mental malady be undetected. He may recklessly, and in opposition to the best counsels and most pathetic appeals, squander a fortune, which has been accumulated after many years of active industry and anxious toil. He may become vicious and brutal, a tyrant, a criminal, a drunkard, a spendthrift, and a suicide, as the result of an undoubtedly morbid state of the brain and mind, and yet pass unobserved through life as a sane, rational, and healthy man."

Now here is a case in which it is the plain duty of the physician of the family interested, to point out the exact character of the case to the friends of the patient, and show them just what moral and legal restraints are called for, both for their good and for his. He is not to wait for such proofs as shall be patent to a superficial, non-professional observation, before he shall act. To do this, would be to neglect not only the means of relieving from pecuniary loss and domestic distress, but, what is of more immediate interest to him as a physician, the means of restoring the patient to society.

For want of decided action just here, many a patient passes at length into an incurable state of insanity, or even into drivelling imbecility.

It often requires both broad and rigorous investigation to decide the question whether a person is insane. Dr. Winslow has furnished much material for such investigation in his facts and his comments on them; but he has not laboured as fully and as definitely as we could wish at the points of discrimination, which it is necessary to look at when the case is an obscure and difficult one. We will notice briefly some of these points.

If the question be in relation to some act, we are to inquire as to the manifestations of feeling which preceded, accompanied, and followed it. If it was perpetrated without any adequate motive, the presumption is in favour of the existence of insanity. None, for example, but an insane man would murder a boy, because he accidentally trod on his toe, and then say of the act, in the coolest manner, "It is good enough for him—I'll teach people not to trouble me in that way." Acts of theft, done without any advantage to the one that commits them, are indicative of an insane propensity. If an act be based on premises which are outrageously inconsistent with rational views of things, it is evidence tending to prove insanity, although it is to be remembered that sin is always more or less irrational, because in the commission of it passion overpowers or perverts the reason.

There is generally a considerable change of habits of thought and action in the insane; this, then, is a point for investigation in any doubtful case. The change is gradual or sudden according to the rate of rapidity in the onset of the disease. We will state a case which occurred under our own observation: A man of strong passions but rather weak intellect became a decidedly religious man; the change was a very marked one, and he went on for some time in a perfectly consistent course; at length, after some other strange conduct, he committed an act of indecency in public in a neighbouring city, which brought him under the care of the police; on returning home, the affair was noised about and the act was commonly spoken of as a vicious one, showing, according to the opinion of a severely judging world, that his religion was vain. But on investigation it was found that there had been recently a thorough change in all his habits; from being orderly in his accounts, his business, and in all his habits he had become disorderly; from being a strict economist he had become ridiculously extravagant; from being kind in his domestic relations he had become violent and brutal, so that his family were afraid of him, &c. We therefore pronounced him to be insane, though most people laughed at the idea as preposterous. The insanity soon became obvious to every one.

With the change of habits there is oftentimes manifest bodily ailment; when this occurs, of course it makes the case a clearer one than it otherwise would be. So, too, it helps to reveal the nature of the case if we can trace it back by a series of ailments to some injury of the head, even though the ailments have been slight, evanescent and variable.

It is to be borne in mind that the habits of men are sometimes strangely altered where they remain all the while perfectly sane. But when this is the case there are some adequate causes to be seen which have produced the change, and the incidental circumstances of the case are such as to show the mode and the reasons of the change.

It is also to be remembered that sudden developments of character may come from secret causes which have been long operating; but when this is the case, the operation of those causes may be discovered in looking back

upon the course of the individual, though it was not obvious at the time; no suspicion then existing to awaken any scrutiny.

Again, we must not lose sight of the great growth to which wrong and strange habits may reach, and of the accretions of a multiform character which they sometimes gather in their growth. This is the explanation of those monstrous and absurd eccentricities which are sometimes engendered in the course of a long life in persons that are yet truly sane. Eccentricity of character may lead to insanity, but it certainly very often exists without any departure from cerebral health. There are some cases in which the mind is so warped by eccentricity during a long life, that there is at length a strong resemblance to insanity, and the diagnosis becomes exceedingly puzzling. We know some cases in which many of the notions and reasonings and fancies and actions occasioned by mere eccentricity are the same as those which we often witness in the insane; even the belief that voices are heard, and that things are suffered from unseen spirits, and from living persons whom the individual ought to know are not present, although ordinarily quite a positive proof of insanity, we have known sometimes to exist as the product of overgrown eccentricities of character.

There is an exceedingly interesting chapter on the stage of consciousness in insanity. The prominent idea of the chapter may be seen in the following extract:—

"In the incipient stage of insanity, I repeat, the patient is fully sensible of entertaining exaggerated and unnatural impressions; is acutely conscious of the mind dwelling morbidly, and sometimes irresistibly, upon certain trains of absurd, unhealthy, and it may be, alas! very unholy and *impure* thought. He painfully recognizes the fact, that insane conceptions are struggling to master his reason, obtain an ascendency over his judgment, an abnormal influence and control over his passions, and the subjugation of his instincts. In some cases (and this is a distressing and dangerous type of insanity), he is impelled (why and wherefore he knows not) to commit suicide, and even to sacrifice the lives of those related to him by the closest ties of relationship, as well as to give utterance to blasphemous, revolting, and impure expressions! He finds it, occasionally, extremely difficult, and almost impossible, to dismiss from the mind, and keep in subjection, these morbid impulses to acts of homicidal and suicidal violence, or to conquer the insane desire to clothe in grossly obscene language conceptions, from the contemplation of which his delicate and sensitive nature would, when unclouded by disease, have instinctively shrunk with horror, loathing, and disgust."

That there is very commonly this consciousness of insanity in the approach of the disease we have no doubt; it is sometimes dim and sometimes distinct. It exists, too, very often, when the disease has considerably advanced, and can be appealed to with profit in pressing upon the patient the necessity of adopting measures for his relief. The insane can be conversed with in regard to their malady in more cases than is commonly supposed, and the mystery, even trickery, so often practised in the avoidance of any true frankness of intercourse, often aggravates the disease and hinders the cure.

In this chapter Dr. Winslow attempts to account for the fact, that some persons supposed to be of very pure character utter in their insanity the most blasphemous and obscene language. In doing this we think that he has not made the requisite discriminations. He attributes altogether too much agency to the native depravity of the heart. He supposes that this depravity becomes more developed, or makes more free manifestations in the insane condition, because then the will and reason have lost their control over the mind, and it is therefore left to follow out its inclinations.

Although this may be true to some extent in some cases, it is not in all; nay, more, we believe it is not in the great majority of cases. We have known some who, previous to their insanity and after it, have given the most undoubted evidence of their virtue and purity, but who uttered exceedingly obscene language while they were insane. We think that Dr. Winslow himself would shrink back from the conclusion to which his ideas fully carried out would necessarily lead, viz., that the amount of obscene language uttered in insanity indicates the amount of obscenity which was latent in the heart previous to the attack of the malady. Indeed, some of his remarks seem to be inconsistent with the main point which he brings out on this subject.

The truth is, that the operations of the mind, when let loose from the control of the will and reason, are governed by innumerable circumstances both mental and physical, some of which are accidental and variable, and many of them are entirely hidden. Who would think of judging by our dreams of what the mind and heart are inclined to in our waking hours? And yet there is the same freedom from the control of the will and reason in dreaming that there is in insanity. In either case the course which the thoughts take is for the most part unaccountable, and as dreaming is seldom the counterpart of the thoughts of the wakeful state, so are the thoughts of insanity not necessarily the counterpart of the thoughts of the sane condition.

This subject is one of some importance in relation to the feelings of the friends of the insane. The view taken of it by Dr. Winslow, which is also taken by Dr. Bucknill, as may be seen by reference to our review (October, 1858), we think to be incorrect, and calculated to inflict unnecessary pain in some cases. Hear what a parent says, as stated by Dr. Winslow:—

"'I have been most careful in the education of my child,' said a gentleman, in deep distress, to me one day, whilst listening to the incoherent ravings of his poor daughter (scarcely nineteen years of age!) 'She has,' he continued, 'seldom been out of the house, and has only been allowed to associate with our own limited and select circle of friends and relations, all of whom are morally, if not religiously, disposed. I never knew a more pure, delicate, and unsophisticated mind, than she possessed previously to her illness; and now, when deranged, she manifests an accurate acquaintance, not only with the most corrupt ideas, but with the improper *phrases* ordinarily used by the most depraved street-walkers!'"

In such a case essential relief could and should be afforded to such agonizing feelings, in accordance with the views which we have expressed above.

One word as to the sources from which, in the case of the pure-minded, the obscene language is derived. In this world, so abounding in wickedness, more enters the minds of children, as suggested by Dr. Winslow, from unprincipled servants, or from vicious books surreptitiously smuggled in, than parents are aware of. Then add also what is heard by the wayside accidentally, or from companions of impure minds, and what is read in some of the vile advertisements, and the minute records of crime so common in some newspapers, and taking into the account the wild excitement of the mind, and of the natural instincts produced often in insanity, we have an abundance of causes for all that we hear in the most painful cases with which we meet.

There follow now several chapters on what are termed stages of insanity —the stage of exaltation, of mental depression, and of aberration. The

word *stage* is certainly not appropriate. *State* would be better. The conditions described are not stages which succeed each other in the disease, but they appear in the various cases in different degrees of prominence, sometimes separately, and sometimes more or less mingled together.

Nearly two hundred pages are very profitably occupied with the memory as disordered by the various diseases of the brain. In the last chapter of this portion of the book, which is on the psychology and pathology of the memory, our author introduces the following speculations :—

"It is difficult to suggest a physiological or metaphysical hypothesis which satisfactorily explains those remarkable conditions of mental paralysis, singular manifestations and aberrations of memory (to which I have previously referred), as preceding, accompanying, and following acute and chronic affections of the brain, unless we espouse the doctrine of the *indestructibility of ideas*, and subscribe to the notion that no impression made upon the mind is ever destroyed.

"If we accept this as an established philosophical theory, we can easily understand how subtle microscopic changes in the delicate nerve-vesicle (*gray* matter of the brain) may cause great eccentricity and singular irregularity in the exercise of the memory, and occasionally, in certain morbid as well as healthy conditions of cerebral exaltation, awaken into active consciousness ideas imagined either to have no existence, or long since supposed to be buried in oblivion.[1]

"Annihilation exists but in the fancy. It is an illusion of the imagination, a dream of the poet, the wild and frigid fantasy of the sceptic. Nothing obvious to sense admits of destruction. This is a well-established axiom in physics. It is not in the power of man to destroy the slightest particle of matter. What is termed 'destruction,' as applied to material substances, is nothing but a change in their elementary composition, or alteration of their constituent atoms. The good and wise Benefactor, the Beneficent Creator of the universe, has not delegated to poor puny man the power of destroying any portion of the physical universe by which he is surrounded, and which ministers so bountifully and mercifully to his every necessity. He may, by chemical or other scientific processes, alter and rearrange the existing combinations of organic matter, but, when disintegrated by such means, the particles so dissipated and apparently destroyed, enter into new and different forms, and assume other types and organisms, but are, in their *original* nature and elements, never annihilated.

"What is true with regard to *material*, holds good, *à fortiori*, respecting *psychical* phenomena. Hence the tonic, permanent, and indestructible character of the impressions made upon the *cerebrum*, and *received* and *registered* in the *mind* during infancy and childhood, as well as in adult age, as established by their resuscitation in advanced and at other periods of life during certain normal and abnormal conditions of the vesicular brain structure and cerebral circulation."[2]

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[1] "Is the permanent character of the pictures traced upon the memory dependent (as Locke surmises) on the '*temper*' of the brain, as if some impressions were made upon *marble*, others on *freestone*, and some on little better than on *sand?*

"'*Cur seniores amplius mente valeamus, juniores citius discimus?*' asks Aristotle; why is it that in youth we learn more quickly, and wherefore is it, as age advances, the intellect becomes more powerful?"

[2] "I use the phrase '*received*' advisedly, for it must be admitted that there are many impressions which impinge themselves transiently on the mind—ideas that are evanescent in their character, and therefore obtain no settled hold upon the consciousness—which cannot philosophically be deemed as *received* and *registered* in the memorial archives. Such are the fugitive notions which do not become objects of *perception*, that so frequently float upon, and pass like shadows over the surface of the mind, in early as well as in matured life, when the brain is not anatomically and physiologically organized or fitted for the facile perception, reception, and registration of ideas. There can be no doubt that the defective memory which so often accompanies old age, is mainly dependent upon certain (as yet unexplained) modifications in the physical nutrition or chemical constitution of the brain interfering with that *vital*, *organic*, and, I may add, *psychical sensibility*,

We demur to this, as a view altogether too materialistic. At least there is no proof that there is a material trace on the brain for every mental impression, much less that this trace is one that can never be effaced. It is a mere supposition, and one, too, which we deem to be inconsistent with many of the phenomena of the mind. We will take a familiar case. You are endeavouring to recall some name, but in vain. At length in some way, you know not how, it comes to you. Is it to be supposed that some little jostle of the nerve-vesicles turned up this lost impression to the mind? With all the minuteness of structure revealed by the microscope, should we not consider such a supposition as not only gross, but ridiculously so? Take another case. A patient under our care during a severe attack of erysipelas had the idea that he was away in some very desolate and miserable place, and his great, all-absorbing thought was that he must get home. The false impression was so fixed upon his mind that he could not be made to believe himself at home even after he was fairly convalescent. We remember calling his attention to objects about the room, as he sat bolstered up in his bed—objects which had been familiar to him through many long years. To all this he shook his head, and said, "I am not at home." At length, after a refreshing night's sleep, he awoke in the morning and found himself at home, wondering very much how he got there. Was there here a sudden restoration to the mind's view of old impressions stamped, as we may say, on the cerebrum? Is not this a manifest impossibility? We have no doubt that the original difficulty was physical—that is, that the mind acted in this strange way in consequence of the state of the brain. But to say that the state of the brain influenced the impressions which the mind receives, is far from saying that the impressions are made on the brain itself, or that the record of the impressions on the mind is dependent for its permanency upon the traces which are at the same time made on the material organization.

Take another case related by Dr. Winslow :—

"A lady, who died of obscure visceral disease, became delirious three hours before death. She then began to talk, in what appeared to those about her, to

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so essentially necessary for its ready adaptation to mental impressions. It may be that the ideas are in reality received, but that the faculty of *reminiscence* being either originally defective, or enfeebled by age or disease, it ceases to obey the commands of the will. The atrophy, as well as diminution in the depth and complexity of the convoluted surface of the brain, so often witnessed after death, in aged persons, undoubtedly impairs that organic cerebral susceptibility and sensibility so necessary for the rapid and permanent reception of mental impressions.

"I had an opportunity, last year, of observing two remarkable illustrations of this fact. I was present at the *post-mortem* examination of the body of a gentleman who died of visceral disease, at the advanced age of 84. Up to this period he had been remarkable for great vigour of intellect, and for extraordinary elasticity and retentiveness of memory. He appeared to have forgotten no impression that ever had been made upon his mind, in early as well as in advanced life. During the examination of the brain I was remarkably struck with its anatomical appearance. The gray matter was by no means diminished in quantity or consistence. The sulci were well marked, and both as to volume, character, and depth of its convolutions, the brain presented an aspect similar to what a pathologist would expect to detect in a person dying in full intellectual power at the age of 30 or 40. In another case, I examined the brain of a gentleman whose mind had become prematurely enfeebled for six years previously to his death. He died at the early age of 56. The convolutions of the brain had greatly diminished in depth as well as in complexity, and the encephalic mass also presented a general shrunken or atrophied appearance. The brain was unusually pale, and there was also (without softening) a want of coherence in its texture."

be the 'unknown tongue.' No one understood a word she uttered. It was eventually surmised that she was conversing in German, a language she had acquired in early life, but which she had apparently forgotten. A native of that country, who was at the time on a visit at a friend's house, was sent for, and conversed with the patient in German. The relations of the lady assured the medical gentlemen in attendance, who were much struck by the singular phenomenon, that she had not spoken the foreign language since she was *ten* years of age! Five years previously to her fatal illness she accompanied some friends to Frankfort, but whilst there never attempted, although frequently urged, to converse in the language of the country. It was then supposed that all the knowledge she had acquired of German when a child had been effaced from her mind."

Can it be supposed that the learning of the German language in her childhood produced "a molecular change in the physical tissue of the brain," and that the revival of this knowledge in her last hours came from some "specific kind and degree of stimulus, physical, mental, objective or subjective, applied to the special cerebral registering ganglia upon which the mental pictures are supposed to be traced?"

We do not pretend to solve the mysteries of the memory. We only say that the supposition of Dr. Winslow is not only destitute of proof, but has not even an air of probability, scarcely of plausibility. There seems to be in the mind of Dr. W. and others who advocate the same views, an idea that there must be some *material* impression in order to make anything mental, permanent. We do not believe this. What is purely mental may be as permanent as that which is material, at least for aught that we know. The analogies to which our author appeals to sustain his views are certainly very loose ones, and we will not stop to notice them. In discussing this topic, we will remark, that many expressions fall from the author's pen which are so inconsistent with his theory, that we are led every now and then to doubt his full belief of it. This comes of an indefiniteness in thinking, which, with all his acuteness, we must lay to his charge.

The remaining chapters of the book are on the Morbid Phenomena of Motion—of Speech—of Sensation—of the Special Senses—of Sleep and Dreaming—of Organic and Nutritive Life—and the General Principles of Pathology, Diagnosis, Treatment, and Prophylaxis.

We had marked many passages in these chapters for comment, but we will close this article by barely alluding to a few things in the last chapter.

The author does not enter into a full examination of cerebral pathology —this we shall expect in his forthcoming volume. What he does say, however, is very suggestive. He gives brief accounts of cases of various cerebral disorders in which either no traces of disease, or exceedingly slight ones, were found on examination after death. He speaks of the various conditions of the brain found in autopsies in cases of insanity. He says of some in which no lesions are discovered:—

"Such types of insanity must either be connected with subtle changes in the vesicular neurine, of which we at present have no knowledge, and which are not even detectable by means of the microscope, or arise from an altered condition of the blood, nerve force, or chemical constituents of brain matter, of the nature of which we are obliged to confess ourselves profoundly ignorant."

In the remarks on diagnosis there is much that is valuable, and yet there is not as much of searching and accurate discrimination as we could wish. The same can also be said of the author's remarks on treatment. We would say in this connection, that we think that we have a right to expect from those who have charge of insane asylums something more in relation

to the treatment of insanity than we have yet had. The profession ought to be more enlightened than they have yet been in regard to the amount of agency physical medication exerts in the cure, and the circumstances which should govern its application.

We have the same characteristics in this last chapter that appear in the whole work. There is abundance of material and of comment. There are acuteness, great liveliness and beauty of style, often eloquence. But there are carelessness, repetition, often irrelevant matter, and sometimes lack of discrimination. The excellencies of the work by far predominate over its faults, and no physician can go amiss in buying it. We will warrant him against getting asleep over it, even after dinner; and if he wishes to do his whole duty to his patients, he will be glad to find here much light thrown upon a group of diseases which are necessarily involved in great obscurity. W. H.

ART. XV.—*Foundation for a New Theory and Practice of Medicine.* By THOMAS INMAN, M. D., Lond., M. R. C. P., London; Lecturer on the Principles and Practice of Medicine; Physician to the Liverpool Royal Infirmary; Author of "Spinal Irritation Explained, or a Treatise on Myalgia," &c. London: John Churchill, 1860. 8vo. pp. 374.

IF there should be announced, in astronomy, a new theory of the solar system, or, in chemistry, a new doctrine of affinity, it might be expected, in either case, that it would be sustained by the name of a Leverrier or a Faraday; or, that it would so abound in demonstration as to leave little room for doubt, if it were to attract the serious attention of scientific men. In our science, however, and especially in therapeutics, more margin appears to be left for speculation. We have not yet reached the great central fact of pathology, nor a universal rule for the *ars medendi*. It becomes, therefore, a duty, to examine the claims of those who assert their power to contribute essential aid to medical progress, either by destroying ancient errors, or by establishing new truths.

A careful reading of Dr. Inman's book compels, however, the opinion, that it would have been more satisfactory under a different title. The idea which pervades the work may be conveyed to our readers in a few words. The author holds that disease is simply a departure from health and vigour, and recovery simply a restoration to vigour and health; and that the broad principle which must underlie all theory and practice presents itself as a truism thus: To cure disease we must bring the patient to health. The method of doing this is, to sustain or recuperate the vital force. This is contrasted with what is designated as "the viciousness" of the plan taught in ordinary medical treatises, with the exception of that of Dr. Bennett, of Edinburgh—according to which plan disease is dealt with as an entity, which invades the body, and which remedies are to combat and drive out. We have traversed, not without interest, the whole volume, to find, upon the last page, in definite language, a reason and justification given for the bold announcement of the author's title-page. It runs thus (p. 352):—

"Lastly; and it is this conclusion which has induced us to give the title we have done to this essay:—

"That the theory and practice of medicine ought to be based upon alteration in *power* or vital *force*, rather than in change of *structure*."

It is impossible to avoid the impression, that the idea of this passage, which is amplified throughout the whole book, is far from new. Is it not, in fact, essentially Hippocratic? Was it not taught, somewhat in disguise, in the animism of Stahl, the parent of modern expectant practice, and, more discreetly guarded, in the vitalism of Barthez, of Montpellier? Dr. Inman admits that Celsus apprehended the principle of reliance upon nature, and economy of force, upon which he lays so much stress; and he evidently considers that, were Celsus living now, he would be engaged upon the self-same task of reform. It would not be difficult to show that the same principle has been understood and expressed by other eminent writers, in all ages of medicine. It will suffice, for our present purpose, to quote one alone, from among the cotemporaries of Cullen and Pinel. Thomas Withers, M. D.,[1] 1794, writes thus:—

"The *strength* of the system, like the wealth of a nation, should be *preserved* with the *exactest caution*, that it may be found vigorous in health, and able, when under disease, to *support* and *overcome* the dangers with which it is threatened."

Brunonism does not differ, practically, from the vitalism of the work under review, except in that Brown, urged by the Hallerian doctrine of irritability, substituted "excitement" for vitality or vital force, and admitted the existence of a few disorders of a really hypersthenic character. When Dr. Brown invited his students to dinner to show them how drinking could cure him of the gout, he might certainly claim to have established a paradox in practice, and to have refuted some prevalent ideas concerning the arthritic diathesis. If this was a narrow foundation for a "new theory and practice of medicine," we are able to find still less available material for the same purpose in the volume before us, with much less of novelty in the superstructure.

In physiology, the radical idea of vital dynamics, of the peculiarity and supremacy of vital force in the living organism, has been developing, at least, since Bichat. It has grown familiar, in the writings of Valentin, Liebig, Carpenter, and others. The correlations of life-force with the inorganic physical forces are now more and more urged; even Owen[2] admitting a doubt in regard to the spontaneous evolution of protozoa by a certain "collocation of particles," and Pouchet[3] asserting new experimental evidence of the actual occurrence of such phenomena. It is true, that all physicians, and even all medical writers, have not based their systems of practice upon physiology. A more patient and thoughtful attention to vital dynamics might be of advantage to the culture of many practitioners; and it is herein, chiefly, that, setting aside the question of novelty, we find the principal value of a publication like that of Dr. Inman. It is believed, by the latter, that many physicians, towards the end of a long experience, act upon his principle, although none of them have, as yet, been bold enough to publish it. Yet, the "Young Physic" of Sir J. Forbes, and the "Nature in Disease" of Dr. Bigelow, not to mention some later and more rhetorical

[1] The same writer deplores "the abuse from excess of bleeding," which he declares to be the more dangerous "on account of the acknowledged degeneracy of the human species." *On the Use and Abuse of Medicine.* London, 1794.

[2] Address before the British Association at Leeds, p. 28.

[3] Hétérogenie, &c., 1859.

contributions to medical literature upon the same topics, are very much to the same effect. The work of Dr. Inman would not, in fact, have attracted the moiety of the attention it receives, but for the previous existence of a certain ebullition, which might almost justify our calling the present period an age of medical scepticism.

It is singular that our author should, indeed, have supposed himself to be almost alone in medical reform, while he refers, repeatedly, to the great improvements in therapeutics *already accomplished*. Thus, on p. 238, he contrasts the present prognosis in pneumonia and pleurisy with the results of the same diseases thirty-five years ago; on p. 338, a similar comparison is made in regard to fevers and erysipelas; and on p. 341, the success of "the present plan of treatment" is noted as especially remarkable in convulsive affections. It will be hardly out of place to recall the fact, that the *tonic* treatment referred to was appreciated fully in *hysteria*, as long ago as the time of Sydenham.[1]

Nor does it seem otherwise than inconsistent for our author, along with these admissions of accomplished progress, to insist or imply, as he does repeatedly, that what is *now* orthodox practice will in "a time that is coming, the sooner the better" (p. 156, note), be consigned to such obloquy or oblivion as now belongs to the weapon-salve and kindred absurdities of former times. It is asserted positively in the preface (p. xi.) that Hahnemann and his followers démonstrated their advantage over the older school of medicine "both in reduced mortality and duration of illness."

It is impossible to admit that this is the judgment of the profession, when guided by the utmost impartiality. It is difficult to see how any one, examining the report of Dr. Routh based upon personal inspection, or the analyses of Drs. Gairdner and Simpson[2] of the published statistics, can fail to see the error of such an assertion. Upon this question, however, we have no occasion to dwell.

It will be desirable to give some account of the contents of Dr. Inman's chapters; in which, as we have already said, will be found, here and there, matter of considerable theoretical and practical interest.

The first fourteen chapters, comprising nearly two-thirds of the book, might have been entitled "Studies of the vital force." The propositions which the author endeavours in them to establish are recapitulated at the close of the volume (p. 349). They are as follows:—

"1. That the phenomena of life are due to a definite *force*. 2. That the vital force is not identical or co-relative with any other known force. 3. That it is a force acting in a definite direction, which direction differs in genera, species, and individuals. 4. That the vital force manifests itself in two forms—conservative, *i. e.*, resisting injuries; reparative, *i. e.*, repairing damages. 5. That in healthy human beings, under favourable circumstances, the amount of vital force in each is equal. 6. That vital force cannot be increased beyond the natural standard. 7. That it may be deteriorated, reduced, or depressed. 8. That when it is so depressed there is alteration of structure or function in one or more parts of the body. 9. That the presence of disease implies impairment of vital force. 10. That vital force may be regained, or restored to its healthy standard. 11. That repair of injuries and recovery from disease can only take place through the instrumentality of the vital power. 12. That the reparation will be fast or slow, according to the amount of vital force in the system, or in a part."

The practical conclusions deduced from these premises will occupy our

[1] On Acute and Chronic Diseases; edited by Dr. B. Rush, Philad. 1815, p. 393.
[2] Tenets and Tendencies of Homœopathy, 3d ed. p. 105.

attention presently. There is, in the examination and discussion of the topics above enumerated by Dr. Inman, proof of a great deal of intelligence and careful observation; and much valuable information is conveyed, a portion of which is to a certain extent new.

In Chapter VI. the subject of "deficiency of vital force" is taken up. "Incipient death" is considered at length, and the view is advocated that many of the symptoms and signs of local as well as general disease are in fact signs of the body or its parts being in a slowly or rapidly *dying state*. By this state the author means to indicate "the intermediate condition between the period when a part is living and in health, and when it is dead and a foreign body." Pain is mentioned as one of the most frequent attendants of this condition of incipient death; and an effort is made, it appears to us in too sweeping a manner, to establish a diagnostic connection between pain and degenerative disease.

Chapter VII. is occupied with the functional and structural results of deficiency of vital power in the *nervous system*. The most important phenomena described are those of mental derangement, insomnia, defective or perverted sensation, spasmodic affections, and paralysis, when the cerebro-spinal axis is especially the seat of exhaustion; and feeble respiration, palpitation, vitiated secretion, and a tendency to sloughing, if the organic nervous system be more particularly involved. In the brain, spinal marrow, and other nerve-centres, *softening* is indicated as the most usual and direct organic result of depression or exhaustion of the vital force. Degeneration of the cerebral vessels is treated of in Chapter VIII., with the introduction of the history of twenty-two cases, intended to show the disadvantage of "depressing treatment" in apoplectiform affections, and the corresponding preventive and curative power of tonics and a supporting regimen. In analyzing these cases with some care, we find mention made, in nearly all, of symptoms or circumstances which would have suggested to *most* practitioners the inappropriateness of large depletion. Vertigo, headache, occasional mental confusion, &c., are universally known to be very often dependent upon an enfeebled condition of the system, requiring tonics, stomachics, &c. At the same time, it is very probable that harm has been done, in former times, by considering too little, when apoplectic symptoms were apprehended, the general force of the economy, especially in advanced life. As seconding the important teachings of Dr. Todd upon this point, the narrative of such cases has its value.

Similar observations are extended by Dr. Inman to the history and management of *hydrocephalus*. Having been led by analogy and experience to treat this affection upon an invigorating plan, he remarks that—

"The result has been well marked; instead of finding hydrocephalus now to be a fearfully formidable disease, I find it quite as tractable as any other strumous affection, and the mortality to be not more than about ten per cent.

"This has been brought about, first, by recognizing threatenings of brain disease at an earlier stage of the complaint than was formerly considered possible; secondly, by paying strict attention to the smallest departure from health; thirdly, by avoidance of all depressing remedies, especially purgatives; and, fourthly, by using steel, change of air, and other tonics."

In Chapter IX. deficiency of vital power in the *lungs* and *respiratory apparatus* is discussed. Its familiar signs are, feeble, irregular, or sighing respiration, singultus, &c. Inferior capacity of performance with the spirometer is, very reasonably, ascribed rather to a defect of *muscular inflating power* than to physical peculiarity or change in the lungs themselves. This

is especially shown by the variations which occur, in this respect, with the same individual at different times, even during the same day.

Deficiency of vital power in the *heart* and *bloodvessels* engages the attention of the author in Chapters X. and XI. Degenerative affections of the vessels appear to have been special subjects of study with him; a "history of atheroma in arteries" being connected with his name on the title page of this work. We find, accordingly, in Chapter XI., an interesting and succinct account of the changes, chiefly fatty and "brittle" degenerations, to which arteries, capillaries and veins are liable under old age or disease.

In Chapter XII. the *stomach* is shown to make manifest the lowering of its vitality by indigestion, and especially by *anorexia* and *flatulence*. This last symptom is deemed by Dr. Inman to be of sufficient consequence to form the subject of a separate essay, which is placed in an appendix. He believes flatulence to be, when at all persistent, an evidence of systemic as well as gastric debility, for which the essential remedies are those general measures which are calculated to improve the general health.

Debility and defective vitality of the *muscles* has been a favourite topic with our author; under the name of *myalgia* he has made it the subject of a volume previously published. The prominent results of "incipient death" in the muscles are described (Chapter XIII.) as being loss of power, softness of texture, irregular and spasmodic contractions, pain and soreness. These symptoms are recognizable not only in the voluntary muscles, but also in those of organic life; as the alimentary canal, the bladder, uterus, &c.

Lastly, in Chapter XIV. we find a long exposition of the influence of deficiency of vital power upon the *blood*, and upon the secretions and excretions. The statement upon which Dr. Inman dwells with the greatest emphasis is, that "the quantity of fibrin in the blood is evidence of poverty rather than richness." This is supported (Appendix, No. II.) by a table compiled from the reported analyses of Simon, Andral and Gavarret, Becquerel, Rodier, and Beclard; affording to the author the deductions, that there is a larger proportion of fibrin in venous than in arterial blood, and that the amount of it, increased to 90 per cent. or more by fasting; and, in old age or great weakness, 200 per cent. Dr. Bennett is reported as having found it to be 1100 per cent. in excess in a case of leucocythæmia, and 700 per cent. in one of cancer. In Dr. Inman's table, acute rheumatism stands at the head of the list, as exhibiting an excess of fibrin ranging from 190 to 550 per cent.; pneumonia follows at a short interval; then come Bright's disease, cholera, glanders, bronchitis, &c.; chlorosis and disease of the spinal cord terminating the series, with an excess of 75 per cent.

These results are interesting, and no doubt reliable, as far as they go; but the subject is too complex to allow of hasty or dogmatic decisions and inferences. To the question of our author, "are we not justified in drawing the conclusion, that whenever there is excess of fibrin in the blood, a considerable amount of debility is present?" we would answer that, in the practical sense in which he interprets it, of *comparative* debility, indicating roborant treatment alone, such a conclusion is obviously premature. While we are unable positively to determine whether fibrin is an excrementitious or a purely plastic substance, it is certainly necessary that farther investigation should be applied to its variations, and to all others affecting the blood in disease, before we can draw any precepts in therapeutics from such data.

While upon this subject it is necessary to allude to the citation (p. 194)

by Dr. Inman, of the experiments of Mr. Paget;[1] in which, apparently from an anxiety to obtain their support for his own theory, the former writer has not been sufficiently accurate. From the examination of lymph obtained by vesication from thirty patients in St. Bartholomew's Hospital, Paget drew the positive inference that "the highest health is marked by an exudation containing the most *perfect and unmixed fibrin.*" This cannot, surely, be tortured in any way so as to sustain the view just alluded to, as advocated by Dr. Inman.

Among the most interesting portions of the book under consideration, are the pages devoted to the subject of the influence of depressed vitality upon the *secretions* and *excretions*. Combating the notion that secretion is essentially an active process, and denying, in somewhat too summary a manner, the practical value of the distinction between active and passive secretory transudation, a number of facts are brought forward to show the association of increased perspiration, bronchial secretion, gastrorrhœa, &c., with decaying vigour, or at least temporary debility. Similar reasoning is extended by analogy to the subject of the treatment of *dropsy;* affording the writer ground for the opinion that the plan of treating dropsical effusions by diuretics and frequent purgation, without strengthening remedies, is "radically bad."

The effect of depreciated vital energy upon the *excretions* is fully considered. Excreta do not decompose while within the cavities of the body so rapidly as after they have left it. It is, then, a question, as "vital power" does not appear to leave an amputated limb immediately upon its separation from the body, whether vitality does not retain some influence even over the excreta for a time after their expulsion. Dr. Inman's attention was first called to this subject by M. Ledoyen, who, in illustrating the effects of his disinfecting liquid in the pauper hospital at Liverpool, remarked upon the diagnostic and prognostic significance of the degree of chemical change which had occurred in the alvine dejections of a number of patients. Other facts subsequently confirmed the same view.

"If any one will diligently consult the napkins used by infants, he will find that, during the time the motions are of a good healthy yellow colour, they have a peculiar odour, which they retain for twelve hours at least; but if, from any cause—*e. g.*, debility in the nurse, or inappropriateness of the food—the child loses its healthy condition, the motions not only change in colour and consistence, but in smell, and decompose in a very short time after being passed. Where there is diarrhœa and excessive depression of the vital powers, the motions are often found to be decomposed in a few minutes. We may notice, too, that a similar result is met with at the same time in the other secretions of the child; and that the urine decomposes quickly, and the breath is foul or sickly. But it is not in children alone that these changes may be detected: they are equally evident in adults."

It is laid down by our author as a rule, that if, on a cool day and in a cool room, the urine of a patient shows evidence of decomposition in twelve hours, it is proof of a debilitated condition of the bladder, the kidney, or the system generally. The only objection to the large use of this method of diagnosis is the insalubrity of a collection of discharges preserved for twelve hours or more for examination. But the facts are well worthy of attention. We have observed, in going the rounds of a hospital, that flies collect more numerously about the bed of a patient who is very ill and feeble than about those who are in a more healthy state; probably from the same cause

[1] Surgical Pathology, Phila. ed., p. 220.

as that of the occurrences alluded to above, viz., the more rapid decomposition going on in the perspiration, breath, &c., of the debilitated body.

The practical conclusions of Dr. Inman, from the facts and ratiocinations elaborated in the first part of his work, occupy the remaining chapters; with some illustration of their bearing by cases, and frequent criticism of other views. These conclusions may be best stated in the author's own words, by continuing a quotation commenced upon a previous page.

"13. That any plan of medication which produces a steady diminution of vital power must necessarily be bad.

"14. That all treatment must have for its end and aim the restoration of the patient to the standard of health.

"15. That these principles ought to underlie all medical theory and practice.

"16. That in following up these principles, the physician must closely ascertain what are depressing agents, and those which have an opposite tendency, generally and locally.

"17. That vital force cannot be directly increased or augmented.

"18. That food and physic are only 'means to an end.'

"19. That it is unphilosophical to employ means to restore the vital force in a part, if we are doing anything to depress it as a whole, and *vice versâ*.

"20. That there cannot be deficiency of vital force in one organ without a corresponding deficiency in other parts, except from some purely local and temporary cause.

"21. That where there is evidence of deficient vital power in the nervous system, and in the heart, lungs, stomach, liver, &c., it is unphilosophical to assume that one organ is diseased because the other is; inasmuch as all of them are affected from one general cause, *i. e.* deficient vital power." (p. 350.)

It is unnecessary to occupy more space with this recapitulation, as the substance of Dr. Inman's remaining propositions has already been fully conveyed.

There is certainly an attractive *simplification* of practice involved in this view of disease and its treatment. But Dr. Inman himself sees in it sufficient complication; as, "although it may seem a very simple thing to endeavour solely to bring back the vital powers of a patient to the standard of health, yet in reality nothing is more difficult to effect." And, looking back to that portion of the volume which is the most closely reasoned, we find an admission that the problem of therapeutics may even include other elements and formulæ. It is there said (p. 79) that the physician in certain cases "takes blood, gives calomel, antimony, and the like, all of which have a direct tendency to diminish the vital force; but he uses them for a short time only, and if by the use of them he is enabled to restore the normal condition of any organ, the disease of which threatened to cut short life, they become converted into direct conservators."

This is very sound therapeutics; but it has been forgotten in the enunciation of the scheme of doctrine afterwards given out for the purpose of replacing the "old and faulty plan of medication." The use, however, by our author, of the expressions quoted in the above passage, shows that no strict analysis or logical synthesis of the relations of disease to treatment can result in the determination of a *unity* of medication. All attempts to establish such unity involve erroneous statements of fact, or of reasoning, or of both. More than once, in the present volume, is this illustrated; as by the admission (p. 241) of the special value of quinine in miasmatic diseases, of turpentine in hemorrhages, kousso in tapeworm, ergot in tardy parturition, colchicum in gout, arsenic in skin-diseases, creasote in vomiting, lime-juice in rheumatic fever, &c. And, again (p. 302), the individual and local character of particular diseases is recognized, in the assertion of a

"mysterious affinity between a certain organ and a certain material." The opinion is there expressed that specifics act chiefly by enabling the system to *tolerate* the acting morbid poison. This is applied to the cure of periodical fevers by quinine; and the experience of African navigators is alluded to, in favour of the explanation that it acts, whether as a curative or preventive, simply by *supporting* the organism during the time of exposure to the influence of the poison. Dr. Livingstone's latest accounts do not appear, however, to corroborate this; as his failure on the Zambesi to ward off fever by quinine, in his recent journey, seems to us to be explicable by the fact that the doses used were too small, being therefore *merely* tonic, and not specific or anti-miasmatic.

The question is asked and reiterated by Dr. Inman, "On what principle does a physician endeavour to restore health by means which would make a sound man ill?"[1] If any further answer be required, beyond the citations just made, we may still find it afforded in his own language.

"Experience teaches that a blister, which will produce an inflammation of the skin, and every part to which it is applied, is, under certain circumstances, instrumental in curing internal inflammations. She tells us that opium or alcohol in excess will produce delirium tremens, and that the same medicines in other doses seem to be instrumental in its cure. She tells us that arsenic and iodide of potassium, both of which produce inflammation of the skin, and sometimes even scales, papulæ, vesicles, or pustules, are very useful in the cure of such cutaneous inflammations as lepra, eczema, and rupia." "An irritant which will produce inflammation in a healthy part, will actually bring the same vessels to a healthy state when they are weakened by disease." (pp. 304, 305, and 324.)

Is not the question of *principle*, then, sufficiently answered? No modern physician will, at the same time, hesitate to join with the author in the declaration that "the principle of *doing evil to the constitution*, that good may come, is as false in medicine as it is in theology." The assertion that it is other than false has not met our notice anywhere in medical literature, nor do we believe its truth to be acted upon by any intelligent and well-educated practitioner. The quotation (p. 244), from Sydenham, of the motto "*Primum est non nocere*" is appropriate, not only on account of its own force, but because it shows what not only is, but has been, the *animus* of the leading minds of the profession.

A tone of medical scepticism in regard to all experience except his own pervades the whole of Dr. Inman's volume. We ought, however, to except also such recently asserted experience on the part of other practitioners as agrees with his own views. Partiality for these leads him to some very sweeping as well as hasty declarations. Thus (p. 237), it is dogmatically stated that "mercury converts adhesive into suppurative inflammation, *i. e.* a high into a low type;" and that "adhesive inflammations, as a rule, are recovered from *earlier* where mercury is not profusely used than where it is." It is said (p. 339) that "infantile diseases," as well as chorea and epilepsy, were once met by leeching and calomel, with, in the first named, lancing of the gums; but "a more correct modern experience treats *these complaints* by such tonics or other means as are likely to improve the constitutional vigour." The Italics are ours. Further (p. 347), an allusion is made to the statistical results of the comparison of the bleeding and non-bleeding modes of treatment in pneumonia. We should have supposed that this question, in regard to all the statistics which Dr. Inman quotes, might

[1] P. xii., Preface; and p. 225.

be considered as disposed of, and certainly not to the entire advantage of the purely expectant practice, by the thorough analysis of all the recorded facts in the paper upon the "Bloodletting Controversy," in the *British and Foreign Medico-Chirurgical Review*, July, 1858.

One of the most original chapters in the book before us is that (Chapter XVIII.) upon Counter-irritation. The proposition is started, and defended with considerable force, that the principal action of what are usually called counter-irritants, revulsives, or derivants, is really *direct*, by absorption of the agent used, upon the *diseased part*. Dr. Inman enunciates the law that "any material capable of being absorbed through the skin acts primarily and most energetically on the spot to which it is applied, and on the parts in its vicinity; and secondly, and more mildly, on the system generally." The corollary is derived from this, that blisters, or similar agents, do *harm* in the acute stages of ophthalmia, croup, pleurisy, pneumonia, and pericarditis; while they do good in the latter stages—"at that period, in fact, in which, could we use direct means, we should employ a solution of sulphate of zinc or of nitrate of silver to the inflamed surface." We are interested to observe, by this statement, that our author marks clearly a difference, as to therapeutic indications, between the acute and the terminal or chronic periods of inflammatory disease; a difference which, in the categorical exposition of his "broad principle" of practice, might appear to have been overlooked.

If, in the definition of this general principle, and of its foundations, as so far cited and examined, we have been able to obtain only partial satisfaction, the disappointment culminates when we find, upon the last page, their condensation, in a final doctrinal conclusion, as follows:—

"We may sum up our idea of the correct principle of treatment thus: In the early stage of any disease, when fever is present, the mildest medicines are the best, as the condition is a natural one, essential to the complaint, and having in previously healthy persons a constant tendency to abate after a definite period; under no circumstances should means be adopted to cure this fever which would of themselves suffice to make a healthy man seriously ill. As soon as the intensity of the symptoms subsides, and before the fever itself has gone, the plan of treatment is to be entirely changed. One day may be given to ascertain the condition of the vital power, and the direction it is taking; after that the physician will encourage the restorative powers of the system with medicinal or hygienic dietetic agents until health is restored.

"Special diseases require special treatment, yet the preceding principle is applicable to all."

Behold, then, in this universal formula, the *elixir vitæ* which the alchemy of our author's "modern experience" and "rational medicine" elaborates, to revivify the dogmatism and empiricism of the schools! We must acknowledge that, however profound our interest in medical advancement and reform, this summary transfusion does not altogether content us. It is much easier to tear down and destroy than to create—or to perfect, by a single effort, that science, whose past history shows that it can only grow to maturity by the slow accretion of ages. Nor, indeed, we apprehend, can those labours contribute very essentially to its development, whose spirit is rather that of the iconoclast than of the simple and direct ministry of nature. H. H.

ART. XVI.—*A Practical Treatise on the Diseases of the Lungs, including the Principles of Physical Diagnosis.* By WALTER HAYLE WALSHE, M. D., Fellow of the Royal College of Physicians; Professor of the Principles and Practice of Medicine, and of Clinical Medicine, in University College, London; Physician to University College Hospital; Consulting Physician to the Hospital for Consumption. A new American from the third revised and much enlarged English edition. Philadelphia: Blanchard & Lea, 1860. 8vo. pp. 468.

WE are glad to welcome a new American edition of the third revised and much enlarged English edition of Dr. Walshe's practical treatise on the diseases of the lungs. The motto of this edition, "*Rerum ipsarum cognitio vera e rebus ipsis*," is well chosen. The opportunities enjoyed and diligently improved by our author of seeing and studying pulmonary disease, on the continent as well as in London, are well known, and the profession are glad to have the results, the views, the opinions of so competent, so practised an observer. A small octavo volume was published nine years ago, three hundred and eighty pages of which were devoted to the diseases of the lungs. We now have four hundred and sixty much larger pages appropriated to the same subjects, and another octavo volume is promised, containing a practical treatise on diseases of the heart and aorta.

This treatise on pulmonary disease, like the last, is divided into two parts. The first is taken up with a physical examination of the lungs and appendages. An introduction on clinical topography is followed by a setting forth of the methods of physical diagnosis. Articles on application of the hand, on mensuration in rest and in movement, of capacity for air, precede those on percussion and auscultation, and are much more full than in the first edition. The division of the work into sections, which are numbered, makes it more convenient for study and reference. We are glad to find the physiological variations in inspection, mensuration, percussion, and auscultation so fully set forth before those are set down which should be regarded as signs of disease. A student should know well what can be seen and heard in health before he tries to get hold of the symptoms of disease. A good deal is said of costal and abdominal respiration as found in the two sexes. It has been surmised that the freer use of the ribs in respiration in the female was connected with allowing for the cavity of the abdomen being at times distended by an impregnated uterus. Dr. Walshe does not find satisfactory proof of this, and he thinks that there is satisfactory evidence of the peculiar respiration of the female not being congenital, or observable in the first two or three years of life. We are told of physiological heteromorphisms, that they may be congenital or acquired, and general or partial. Again, it is well said that certain local irregularities of form may be either of physiological or of pathological origin; that disease and accident may produce the same alteration of shape; and that the mode of origin of such deviations can only be positively determined by the absence or presence of other signs denoting subjacent disease, or by the previous pathological history of the individual.

The mensuration of capacity for air has attracted attention, within a few years, even out of the profession, and men with spirometers may be seen in the thoroughfares of our cities, inviting all passers-by to ascertain in this way the size and soundness of their lungs. Dr. Walshe uses the terms

persistent and residual as applied to stagnant air. The first he applies to the volume of air remaining in the cells even after the complete collapse of the lungs in the dead body, and which cannot, by ordinary means at least, be artificially expressed from their tissue, though thoroughly removable by the influence of certain diseases, especially those causing fluid pressure on the pleural surface of the lung. The "residual" air cannot be expressed from the lungs during life by the strongest expiratory effort, and is expelled by collapse after death. The total breathing volume is divided into supplementary, tidal, and complementary. The volume of air expelled by a forced after an ordinary expiration may be termed supplementary, whilst that which can be inhaled by a forced after an ordinary inspiration is named complementary, and the tidal air is the volume passing to and fro in calm breathing. The experiments of Bungay, Hutchinson, Arnold, of Kentish and Herbst, of Dr. Pepper in our own country, are properly referred to, and it is well said that "the spirometer indicates when the lungs derive an insufficient supply of air, but tells nothing of the distribution of the inspired air, and gives no clue to the cause of the deficiency. So, too, the measured range between forced expiration and forced inspiration may be the same on the two sides, and yet the accompanying change of volume of the two lungs be very different in kind. With an expiratory force in excess the supplementary volume is more affected, and the complementary air is most affected with a predominance of inspiration." There is room for further study and experiment in these directions, and Dr. Walshe seems to us to have stated fairly and clearly what has been found out, and the applicability of our knowledge in the diagnosis of disease.

Percussion as applied to diseases of the lungs has been carefully studied, since the publication of the first editions of the treatise. The two terms, dull and clear, which have been used by English writers to indicate the varying characters of thoracic percussion-sounds, are properly said to be both inaccurate and inadequate. Skoda's terms, full and empty, are not satisfactory. Dr. Walshe devotes several pages to percussion in health, and in the sections on percussion in disease he sets forth the statical signs concisely and clearly. He describes variations in pitch, quality, duration, and resistance, and gives four types of morbid resonance—tonelessness or dulness, extra resonance, hardness, and muffled tone. He divides the hollow type into three varieties—the tubular, amphoric, and cracked metal; defines these terms, and points out under what conditions the sounds thus characterized are found. The movableness of area of morbid percussion signs is properly dwelt upon in this edition, and the reader will find a good deal of new matter in this part of the work, with a better arrangement of the whole.

In the section on auscultation, where the different characters of respiration in corresponding parts of the right and left chest are dwelt upon, our author tells us of having devoted much time to the examination of this point at the apices of the chests, and of being obliged to modify opinions formerly expressed. He admits that there is no excess, as a constant condition, in the length and intensity of the respiration-sounds in either upper region of the chest, and no necessary difference of pitch and quality. But, he tells us, "appreciable differences in these points are of sufficient frequency in perfectly healthy chests to impress upon us the wisdom of caution in ascribing to incipient disease very slight inequalities in the two sides, even where pulmonary or dubious general symptoms may entitle us to look for something physically wrong in the lungs." At the same time, the infra-clavicular regions are tabularly compared, to show that a greater tendency

exists to bronchial character in the respiration at the right front apex than at the left, while excess of loudness and duration of respiration may pretty frequently be looked for at the left. Dr. Walshe adheres mainly to the divisions he previously made of modifications of respiration in disease. He speaks of harsh bronchial and of blowing inspiration, the latter sometimes simple and sometimes hollow. Simple blowing respiration may be diffused or tubular, whilst the hollow variety may be cavernous or amphoric. A change may take place from diffused to tubular blowing, and the explanation, stated as conjectural in the first edition, connected with diffused blowing respiration proceeding from a number of small bronchi, and tubular from a few larger ones, is admitted not to be verified in a case subsequently observed. The mode of production of bronchial respiration and of bronchophony is very fully discussed. The objections to Skoda's ideas of consonance are set forth at length, and seem to Dr. Walshe conclusive against the pure doctrine of consonance, while they show that if consonance plays any part in the production of bronchophony, it must be a subsidiary, rare, and accidental one. Then, whilst the fact is well established of the bronchophonic voice being louder than that transmitted through the stethoscope from the larynx, three ways in which a sound may be reinforced—union, resonance, consonance, and echo—are pointed out, and the share taken by each set forth at some length. In all this Dr. Walshe shows that he has studied his subjects again and again, that he has made himself acquainted with the researches and opinions of those who have made these subjects their especial study, and that he appreciates the difficulties in ascertaining the conditions of the lungs and thoracic walls, and in applying the principles of acoustics, a branch of human knowledge which is not yet able to embrace, arrange, and properly classify all the phenomena belonging to it.

The first section of the second part of this work is appropriated to diseases of the thoracic parietes; pleurodynia, thoracic myalgia, intercostal neuralgia, intercostal neuritis, have each a proper space assigned them, and then something is said of various parietal diseases. In the section on bronchitis the affection of the larger and medium-sized tubes is considered separately from general and capillary bronchitis. Chronic bronchitis is considered apart, and the varieties of bronchitis, with the causes on which they depend, are clearly set forth. In the articles on pneumonia and consumption, whilst nothing is neglected that may contribute to an accurate diagnosis, a good deal is said on treatment. Here, too, the author shows that he keeps up with opinion and science as it varies and advances from year to year. We have evidences of sound judgment, of freedom from prejudice, which inspire confidence in the rules and precepts for treatment. Our author is free from hobbies, and shows that he can modify opinions previously expressed, and that though he has written a book and propounded theories, he keeps himself in a condition to modify precepts and change opinions in accordance with subsequent observation. For his statements he refers to cases. We are sorry that these cannot be set forth, too. A valuable volume could be made from cases referred to by Dr. Walshe. He tells us, however, where these are to be found, and refers to them for a verification of his statements. We especially like this feature in Dr. Walshe's work. The accuracy which characterizes the legal profession must be attributed in great part to its members being compelled to make statements in accordance with facts, that are under the observation of judges, juries, and opposing counsel. A clergyman in the pulpit, and a physician in a sick-chamber, speak without fear of immediate contradiction,

and thus may easily fall into loose ways of observation and reasoning. We like, then, a medical author who is willing and able to append to every statement the grounds of it, and who is not afraid to invite a close examination into rules, laws, opinions, or theories set forth by him. We like one, too, who appreciates the extent and difficulty of his work, and who is ready to use all opportunities to extend his knowledge and improve his faculties. We can cordially recommend this last American edition of Dr. Walshe's treatise to all students and practitioners. G. C. S.

ART. XVII.—*Currents and Counter-currents in Medical Science.* By OLIVER WENDELL HOLMES, M. D., of Boston. Annual Address before the Massachusetts Medical Society, 1860.

THIS address has attracted more attention than falls to the lot of most medical addresses. It awakened a very decided opposition in the Society before which it was delivered, notwithstanding the high respect entertained for Dr. Holmes by its members, and it was denounced in no gentle terms at the meeting of our late National Association at New Haven, by some of the members from Massachusetts, in a discussion on the subject of medical education. And besides this, some of its passages have been eagerly caught up by quacks, and have even been incorporated by some of them in their advertisements. These facts have been considered by many as showing conclusively that the address is to be condemned as a libel on our profession. Let us, with the address before us, inquire whether this be really so.

We would premise a few things before entering upon the examination of the article. If abuses exist in our profession, of whatever kind they may be, we are not to avoid an exposure of them from the fear that our enemies will use what we say for our hurt. The profession stands on too high and safe ground to fear anything on this score. And it is to be said further, that the very fact that we are willing to discuss freely and openly such matters, wins for us the respect of the community as a body of fearless, honest, truth-loving men.

But there is great necessity of being cautious not to overstate in such discussions. There is much danger of falling into this error. It is so very common in those who are endeavouring to produce reforms of any kind, that it is expected as a matter of course. And sometimes it seems to be necessary to provoke opposition by ultra views, in order to awaken the feeling requisite for a proper examination of the subject. The grave, cautious utterances of a calm, thoughtful wisdom, weighing carefully every word, often attract but little attention, at least from the great multitude; but let the substantially same sentiments be spiced with a little ultraism (as are some of the sentiments of Dr. H. in this address), and be thrown out with such freedom of language and of illustration as to leave some doubt as to the extent of their meaning, and a mental boiling and surging are produced in the whole thinking mass, in place of the mere ripple which was seen before. If the exact truth will produce the result desired, it is all the better; but the establishment of truth in the public mind is often to be achieved only by having it pass through the agitation referred to, however distasteful it may be to those who have an acute and

clear sense of the true, and however injurious it may be temporarily to certain individual interests or even to the truth itself. In this point of view, even granting that the severe criticisms which have been made upon Dr. Holmes' address are all just, we think a good effect on the whole may result. The great subject brought out in it, the relations of Nature and Art in the treatment of Disease, has not attracted sufficient attention from the mass of medical men. The few have thought upon it much and thoroughly; but the many have had their easy routine of practice but little disturbed by the discussions that have of late been going on in regard to this subject; and it is well that they should be stirred up, even if it be at the expense of a little temporary rejoicing of the whole motley crew of quacks, from genteel homœopaths down to vulgar Indian doctors.

Further than this, we think that much less injury is done to the interests of the profession by unguarded attacks on the errors and abuses prevalent among us, than by the extreme sensitiveness which some medical men manifest to such attacks. Their apprehensions are considered by the enemies of our profession as sure symptoms of its weakness. Let discussion have its widest freedom, and though ill-judged things may be said, let us not be disturbed, for in the general attention awakened, the exact truth will not only find abundant utterance, but will at length be firmly established in the public sentiment of the profession.

The object of Dr. Holmes in his address is to favour a general current which has manifestly been setting in during the past twenty-five or thirty years in favour of assisting nature in the treatment of disease, and in opposition to a predominant dependence on art. That there is much difference of opinion in the profession as to the relative importance of the two agencies is very obvious; some even, practically if not theoretically, placing very little to the account of nature, while others suppose that nature does nearly all the work in the cure of disease, and that medicine if commonly not injurious, is at least not of much value. But there are all shades of difference, and the profession are not gathered into two distinct parties, as would seem to be implied by the language of Dr. Holmes. We quote a single paragraph on this point:—

"We who are on the side of 'Nature' please ourselves with the idea that we are in the great current in which the true intelligence of the time is moving. We believe that some who oppose, or fear, or denounce our movement, are themselves caught in various eddies that set back against the truth. And we do most earnestly desire and most actively strive, that medicine, which, it is painful to remember, has been spoken of as 'the withered branch of science' at the meeting of the British Association, shall be at length brought fully to share, if not to lead, the great wave of knowledge which rolls with the tides that circle the globe."

He speaks, too, here and there, of the "seeming heresy" which he advocates, as if they who have proclaimed opinions similar to those of his address had been regarded by the profession at large almost as heretics. This is certainly not true. However strong the opposition of some has been to these opinions, they have obtained a lodgment in the general medical mind, and the history of our art for the last quarter of a century shows that they have had a very great influence in moulding medical practice, more indeed than would appear from the opinions which are expressed from time to time in our medical journals. Let any one look back upon his own experience during that period, and recall also his observation of the practice of physicians with whom he has had professional intercourse, and he will see this to be true. Perturbing remedies are used far less than

they were, and nature is watched and trusted in many cases in which, thirty years ago, she would have been plied with disturbing medication to produce the desired result. In one part of his address Dr. Holmes speaks of this change, alluding to some of its causes, thus :—

"Our art has had two or three lessons which have a deep meaning to those who are willing to read them honestly. The use of water-dressings in surgery completed the series of reforms by which was abolished the 'coarse and cruel practice' of the older surgeons, who with their dressings and acrid balsams, their tents and leaden tubes, 'absolutely delayed the cure.' The doctrine of Broussais, transient as was its empire, reversed the practice of half of Christendom for a season, and taught its hasty disciples to shun their old favourite remedies as mortal poisons. This was not enough permanently to shift the presumption about drugs where it belonged, and so at last, just as the sympathetic powder and the unguentum armarium came in a superstitious age to kill out the abuses of external over-medication, the solemn farce of homœopathy was enacted in the face of our own too credulous civilization, that under shelter of its pretences the 'inward bruises' of over-drugged viscera might be allowed to heal by the first intention. Its lesson we must accept, whether we will or not; its follies we are tired of talking about. The security of the medical profession against this and all similar fancies, is in the average constitution of the human mind with regard to the laws of evidence."

Perhaps, the chief reason after all for the feeling which this address has provoked, is to be found in the somewhat false attitude in which Dr. Holmes placed his audience, and with it the profession at large. We have no doubt that a full canvassing of views would show that most of those who heard him agree substantially with him, that is, they believe that nature is the chief curer of disease, and the only difference of opinion would be found to be one of degree, not of kind, some even going beyond him in a reliance upon nature. But he evidently assumes to the contrary, and in the conclusion talks of the rights of minorities in such a manner as to intimate that he supposes himself to be in a minority so small as to be in danger of being crushed by the majority. Let us not be understood to mean that he assumes a defiant air. So far from this, he uses the language of appeal, and says: "We must be tolerant, for the thought which stammers on a single tongue to-day, may organize itself in the growing consciousness of the time, and come back to us like the voice of the multitudinous waves of the ocean on the morrow."

Though we do not think that Dr. Holmes appreciates suitably the extent of the change in medical practice in favour of "Nature," yet we agree with him "that, after all which has been said, the community is still overdosed." The causes of this adherence to over-dosing he thus gives :—

"Part of the blame of over-medication must, I fear, rest with the profession for yielding to the tendency to self-delusion, which seems inseparable from the practice of the art of healing. I need only touch on the common modes of misunderstanding or misapplying the evidence of nature.

"First, there is the natural incapacity for sound observation, which is like a faulty ear in music. We see this in many persons who know a good deal about books, but who are not sharp-sighted enough to buy a horse or deal with human diseases.

"Secondly, there is in some persons a singular inability to weigh the value of testimony; of which, I think, from a pretty careful examination of his books, Hahnemann affords the best specimen outside the walls of Bedlam.

"The inveterate logical errors to which physicians have always been subject, are chiefly these:—

"The mode of inference *per enumerationem simplicem*, in scholastic phrase; that is, counting only their favourable cases. This is the old trick illustrated in

Lord Bacon's story of the gifts of the shipwrecked people, hung up in the temple. Behold! they vowed these gifts to the altar, and the gods saved them. Ay, said a doubting by-stander, but how many made vows of gifts and were shipwrecked notwithstanding? The numerical system is the best corrective of this and similar errors. The arguments commonly brought against its application to all matters of medical observation, treatment included, seem to apply rather to the tabulation of facts ill-observed, or improperly classified, than to the method itself.

"The *post hoc ergo propter hoc* error; he got well after taking my medicine; therefore in consequence of taking it.

"The false induction from genuine facts of observation, leading to the construction of theories which are then deductively applied in the face of the results of direct observation. The school of Broussais has furnished us with a good example of this error.

"And lastly, the error which Sir Thomas Browne calls giving 'a reason of the golden tooth;' that is, assuming a falsehood as a fact, and giving reasons for it, commonly fanciful ones, as is constantly done by that class of incompetent observers who find their 'golden tooth' in the fabulous effects of the homœopathic materia medica—which consists of sugar of milk and a nomenclature.

"Another portion of the blame rests with the public itself, which insists on being poisoned. Somebody buys all the quack medicines that build palaces for the mushroom, say rather, the toad-stool millionaires. Who is it? These people have a constituency of millions. The popular belief is all but universal that sick persons should feed on noxious substances. One of our members was called not long since to a man with a terribly sore mouth. On inquiry he found that the man had picked up a box of unknown pills, in Howard Street, and had proceeded to take them, on general principles, pills being good for people. They happened to contain mercury, and hence the trouble for which he consulted our associate."

In relation to the influence of the public, Dr. Holmes very justly says that "the outside pressure is immense upon the physician, tending to force him to active treatment of some kind." Homœopathy, that greatest masterpiece of quackery, meets this demand. It could not stand a moment in the popular favour if it did not. If there were not supposed to be an unusually active potency in the globules, nobody would take them. And we may say here, that the reason that homœopathy has a stronger hold upon the community than other forms of quackery is, simply because, while it caters to the popular taste by a show of powerful medication, it does no positive harm, and leaves to nature alone the work of cure.

In connection with the popular sentiment, Dr. Holmes notices some old superstitions, the influence of which remains more or less to the present day. "One of the most ancient is," he says, "that disease is a malignant agency or entity, to be driven out of the body by offensive substances, as the smoke of the fish's heart and liver drove the devil out of Tobit's bridal chamber, according to the Apocrypha." This notion, though pretty nearly expelled from the medical mind, still lingers in the mind of the public.

This and other superstitions, now discarded by educated medical men, still appear in the various forms of quackery. The fondness for the nauseous and disgusting in medicine is seen even in that very refined form of quackery, homœopathy. Dr. Holmes thus alludes to this:—

"Even now, the homœopathists have been introducing the venom of serpents, under the learned title of *Lachesis*, and outraging human nature with infusions of the *pediculus capitis;* that is, of course, as we understand their dilutions, the names of these things; for if a fine tooth comb insect were drowned in Lake Superior, we cannot agree with them in thinking that every drop of its waters would be impregnated with all its pedicular virtues they so highly value. They know what they are doing. They are appealing to the detestable old superstitious presumption in favour of whatever is nauseous and noxious as being good for the sick."

Besides those agencies which operate everywhere on the profession, tempting it to over-medication, Dr. Holmes thinks that there are some special American influences urging the practitioners of this country to an "audacious handling of nature." He attributes great influence to Dr. Rush in shaping American medical practice. We give the following extract from what he says of this, and what he says of the characteristics of the American medical mind:—

"Dr. Rush must have been a charming teacher, as he was an admirable man. He was observing, rather than a sound observer; eminently observing, curious, even, about all manner of things. But he could not help feeling as if Nature had been a good deal shaken by the Declaration of Independence, and that American art was getting to be rather too much for her—especially as illustrated in his own practice. He taught thousands of American students, he gave a direction to the medical mind of the country more than any other one man; perhaps he typifies it better than any other. It has clearly tended to extravagance in remedies and trust in remedies, as in everything else. How could a people which has a revolution once in four years, which has contrived the bowie-knife and the revolver, which has chewed the juice out of all the superlatives in the language in Fourth of July orations, and so used up its epithets in the rhetoric of abuse, that it takes two great quarto dictionaries to supply the demand; which insists in sending out yachts and horses, and boys to out-sail, out-run, out-fight, and checkmate all the rest of creation; how could such a people be content with any but 'heroic' practice? What wonder that the stars and stripes wave over doses of ninety grains of sulphate of quinine,[1] and that the American eagle screams with delight to see three drachms of calomel given at a single mouthful?"[2]

He goes on to notice still other influences in the following language:—

"Add to this the great number of medical journals, all useful, we hope, most of them necessary, we trust, many of them excellently well-conducted, but which must find something to fill their columns, and so print all the new plans of treatment and new remedies they can get hold of, as the newspapers, from a similar necessity, print the shocking catastrophes and terrible murders.

"Besides all this, here are we, the great body of teachers in the numberless medical schools of the Union, some of us lecturing to crowds who clap and stamp in the cities, some of us wandering over the country, like other professional fertilizers, to fecundate the minds of less demonstrative audiences at various scientific stations; all of us talking habitually to those supposed to know less than ourselves, and loving to claim as much for our art as we can, not to say for our own schools, and possibly indirectly for our own practical skill. Hence that annual crop of introductory lectures; the useful blossoming into the ornamental, as the cabbage becomes glorified in the cauliflower; that lecture-room literature of adjectives, that declamatory exaggeration, that splendid show of erudition borrowed from D'Israeli, and credited to Lord Bacon and the rest, which have suggested to our friends of the medical journals an occasional epigram at our expense. Hence the tendency in these productions, and in medical lectures generally, to over-state the efficacy of favourite methods of cure, and hence the premium offered for showy talkers rather than sagacious observers, for the men of adjectives rather than of nouns substantive in the more ambitious of these institutions."[3]

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[1] "More strictly, ninety-six grains in two hours.—Dunglison's Practice, 1842, vol. ii. p. 520. Eighty grains in one dose.—Ibid., p. 536. Ninety-six grains of sulphate of quinine are equal to eight ounces of good bark.—Wood & Bache."

[2] "Pereira, ii. 614. Quoted from Christison's Treatise on Poisons."

[3] "'Ingeniorum Græciæ flatu impellimur. Palamque est, ut quisque inter istos loquendo polleat, imperatorem illico vitæ nostræ necisque fieri.'—(Plin. Hist. Mundi, xxix. 1.)—I hope I may use the old Roman liberty of speech without offence.

In regard to both of the preceding extracts, it may be said that for the sake of point and effect, in conformity with a license commonly taken in addressing popular assemblies, and sometimes those which are not strictly popular, the truth is broadly caricatured; and yet there is some truth in it, and as medical men we ought to be willing to see it, that we may cast about to remedy the evils alluded to. There *is* too much of the go-ahead in American medicine; and yet, with the American practical good sense, the active element may be so softened down and regulated, that the American profession may assume a position superior to that of any country. We do not agree with Dr. Holmes in his praise of French practice. So far as we are acquainted with it, there is often a mixture of the inert and the positive which is inconsistent, and often ridiculous. For example, in the two volumes of cases of Fever reported so minutely by Louis, we find in the midst of his ptisans and syrups, he occasionally prescribes so positive a remedy as bleeding, and generally under circumstances which most American physicians would consider as absolutely forbidding it. We might give examples from other quarters in regard to the use of other remedies. Besides, if we go back to the time before Broussaism had arisen, we shall find evidence that the positive medication of Americans was borrowed quite as largely from the French as from the English. At that time, Bichât, speaking of the Materia Medica, of course having in view especially that of his own country, holds this strong language: "It is not a science for a methodical mind; it is a shapeless assemblage of inaccurate ideas, of observations often puerile, of deceptive remedies, and of formulæ as fantastically conceived as they are tediously arranged."

As to the abundance of journalism and its attendant evils, we do not think Dr. Holmes speaks too strongly. This disposition to write and print has accumulated a mass of material, a large proportion of which is of no value. If it were a possibility to winnow it properly, how much of it would be found to be chaff! As to what may be called the recorded *experience* of the profession, how much to-day is there of real practical value to the profession in all the volumes of, for example, Braithwaite's Retrospect? Nay, more, how much of all this experience has not been absolutely disproved by after experience? Then, as to medical schools, it is plain enough that popular tactics have been so far adopted as to threaten seriously the dignity and welfare of the profession; and therefore a probing is called for, and no harm will be done if it be a little rude and free. It will help on and render more practical the efforts of the American Medical Association to bring the schools into the right condition.

That passage in this address which has perhaps given the most offence to some of the profession, and the most satisfaction to the enemies of "regular medicine," is the following:—

> "Throw out opium, which the Creator himself seems to prescribe, for we often see the scarlet poppy growing in the cornfields, as if it were foreseen that wherever there is hunger to be fed there must also be pain to be soothed; throw out a few specifics which our art did not discover, and is hardly needed to apply; throw out wine, which is a food, and the vapours which produce the miracle of anæsthesia, and I firmly believe that if the whole materia medica, *as now used*, could be sunk to the bottom of the sea, it would be all the better for mankind— and all the worse for the fishes."

Before entering on the examination of the main point of this passage, we will make a passing remark upon some of its minor points. As to the poetry of Dr. H. in regard to the juxtaposition of corn and poppies, it is

nothing but poetry. As well might we say that stramonium seeds were made for children to eat, because this plant grows by roadsides, and near old buildings. Then, as to the assertion that wine is food, we do not believe that this is true of it, precisely as it is of bread. To say nothing of the chemistry of the question, which we do not deem to be fully settled, it accords with our observation that wine cannot be taken with impunity, quite as freely as what we ordinarily call food; we do not need any *personal* experience to make us know that some effects come from it which are not to be attributed to giving the stomach too much to do. Again, if Dr. Holmes means by the expression in relation to specifics, is hardly "needed to apply," that science and good judgment are not needed in their application, we should decidedly demur. On this point, it will suffice barely to refer to the disastrous results which have come from an indiscriminating use of quinine, domestic, quackish, and even professional, in the treatment of intermittent fever.

But to the main point of the passage; let us look at it fairly.

If Dr. Holmes means by the expression, *as now used*, to include the use by quacks and by the community at large, as well as that by physicians, then there is much truth in the assertion, even if we include in it those articles which he excludes. We verily believe that if at this moment some spell should come over the whole face of society which should forbid the swallowing of any medicinal article, and consign all the sick to good nursing alone, the bills of mortality in all Christendom would be at once lessened, for the disastrous results which come both from the undiscriminating medication of abounding quackery, and from the routine practice of some in the profession, more than counterbalance the good results of the discriminating medication of judicious physicians. And it might be all the better for some, if this spell produced a belief in homœopathy, for this, while really no medicine is taken, would quiet the agitated nerves of those who would be full of fears because nothing is done, and thus nature might more effectually do her work of cure.

It will be granted on all hands by medical men, that in the practice of pains-taking, cautious, judicious physicians much good comes from positive medication. No one denies this, except the homœopathists, and their denial is based on statistics, especially the statistics of the famous Homœopathic Hospital at Vienna, under the care of Dr. Fleischmann. It is claimed by them, that a comparison of its mortality with that of most hospitals under the care of "regular" physicians, makes a large showing in favour of homœopathic practice. The mortality was 6.4 per cent. in 6,500 cases treated during eight years, while the average mortality of the largest hospitals of London during four years was 8.4 per cent. Here is a difference of 2 per cent. in favour of the Vienna hospital. If the comparison be a fair one—if there be no fallacy—then, assuming that Dr. Fleischmann was *honest* and adhered to the infinitesimal doses, the inference is clear, that patients on the whole do better with good nursing alone, and mere placeboes for medicine, than under the cautious and judicious medication which is practised in our hospitals.

But there is fallacy. The gross results do not give us the real truth in regard to the point in question. A glance at the details reveals at once the fallacy. Fortunately for the truth, but unfortunately for homœopathy, Fleischmann was either honest enough or incautious enough to give us the requisite details; and these show beyond all dispute, not merely that the inference which the homœopathists draw from the gross results is false, but

that the comparison in view of the details tells largely in favour of the practice in the "regular" hospitals.

The mortality of hospitals is varied very much by the circumstances which influence the admission of patients. If these are such as to insure the admission of a large proportion of severe and incurable cases, the mortality will of course be high. This is true of large hospitals situated in the midst of densely populated cities, taking in all they can, having a large number of inmates that have received serious injuries, and rejecting, from their crowded state, applications from mild cases. Now, Fleischmann's hospital was situated not in the midst of Vienna, but outside; and, from the details which were given, it is clear that some pains were taken to exclude cases that were incurable, and gather in those which were curable. Thus in a comparison made by Dr. Simpson between this hospital and an Edinburgh hospital, with about the same number of cases treated, in the former there were 301 cases of common quinsy, and only 34 in the latter, 110 cases of chicken-pox in the former, and only 2 in the latter, &c.; while of diseases ordinarily incurable there were of consumption 98 in the former, and 276 in the latter, of palsy 5 in the former, and 103 in the latter, &c.[1] Certainly with such differences, if homœopathy were good for anything, the mortality ought to have been very much less than 6.4 per cent. Even with circumstances much less favourable than those of the Vienna hospital, and with no attempt to regulate admissions, many "regular" hospitals show a much less percentage of mortality. Thus, as cited by Simpson, that of the Dundee Hospital is 5.1 per cent., that of the Aberdeen Hospital 4.6 per cent., that of the Inverness Hospital 4.3 per cent., that of thirty provincial hospitals, taken together, 4.4 per cent., and that of the English military hospitals only 2 per cent.

Taking it for granted that Fleischmann truly followed out the infinitesimal practice, in other words, really gave no medicine at all, we have, in the light of the details which he has given us in regard to the diseases treated, the data for a definite conclusion, viz., that the practice in our hospitals is considerably more successful than leaving patients to nature alone, with good nursing and favouring attendant circumstances.

But the practice in our hospitals can hardly be said to represent fairly that of the profession at large; it is, on the whole, more cautious, and trusts much more to nature, and this for obvious reasons. The physicians of our hospitals are better physicians than the great mass of medical men; and they are, for the most part, wholly exempt from that outside influence which tends to produce over-medication.

We have no means of coming at a definite answer to the question, whether medicine as at present used by the profession at large is productive of more good than harm; but this we can say, that, in view of the abundant evidence of the fact, that nature is the chief curer of disease, those who very generally interfere with her efforts by perturbing remedies, do not merely fail to do as much good as they should, but actually do more harm than good. We refer to those who practically act upon the idea of Dr. Rush, who says, "It is impossible to calculate the mischief which Hippocrates has done by first marking nature with his name and afterwards letting her loose upon sick people; millions have perished by her hands in all ages and countries." With them, medicine is all in all, and they have no belief in any general natural tendency of the system to right itself.

[1] The details of this comparison are very fully given in our Review of Simpson's book on Homœopathy, in the January number for 1854 of this Journal.

That the majority of physicians over-medicate still, notwithstanding all that has been written on this subject, we are inclined to believe; but whether they over-medicate enough to do more harm than good is a question that cannot be definitely answered. There are all degrees of positive medication in the profession, and few scientific physicians at the present day either practically or theoretically indulge the ultra views of Dr. Rush. It is not at all essential to settle the question which we have stated, but it is enough for all practical purposes to start the inquiry and look at the facts which bear upon it. Thought, serious, faithful thought on this subject is what is needed to make our experience teach us individually what the true relations of art and nature are in the treatment of disease.

The address of Dr. Holmes is calculated to promote such thought, and we may perhaps add to this result by throwing out, in a familiar way, a few suggestions besides those which we have made in the review of this address.

When we began the practice of medicine, positive medication was quite in the ascendant, though the false theory with the somewhat true practice of Broussais threatened its overthrow. Then tartarized antimony and calomel and bleeding were prominent remedies in all febrile diseases; emetics were common, especially in the onset of disease; and the general idea was that disease was to be actively attacked by the physician. We remember at this time of being much interested in an account given by a brother physician of an article in some foreign journal, in which the writer attributed the frequent want of success in treating such diseases as scarlatina to a disregard of the natural succession of events in these maladies—a foreshadowing of that idea so prominently brought out shortly after by Dr. Bigelow, in his paper on Self-limited Diseases.

We were also much impressed with the ideas of an old physician who with sturdy good sense resisted the polypharmacy of the times, and who was often wont to remark that it took as much knowledge to know what *not* to do as to know what to do. He often descanted on the evils which he had himself seen to result from indiscriminate medication in various diseases, and especially in the treatment of smallpox. He had seen much of this malady, and so strong was the popular trust in medicine in the treatment of it, that he resorted to bread pills, producing apparently by them results which astonished both the public and his medical brethren.

In the early part of our practice a case occurred which taught us some valuable lessons. A feeble old lady was attacked with colicky pains, and at length stercoraceous vomiting ensued. In order to restore the true peristaltic action, in obedience to the common practice of the times, a terebinthinate enema, among other things, was used. But the turpentine itself was vomited, as was proved by the very strong odour of it in the egesta; and it was manifest to us that disturbing treatment was worse than useless. A quieting course was therefore pursued. We found that small quantities of paregoric and bread coffee would stay on the stomach, and nothing else would. When quiet was at length partially restored, the terebinthinate enema was again used, for the purpose of producing a proper action of the bowels, this being at that time considered a very important matter in most cases, Hamilton's book on purgatives having produced in the profession a general tendency to the use of that class of articles. The stercoraceous vomiting was at once renewed. It was resolved now to pursue the quieting plan to the end. The result was a perfect restoration to health, although there was no passage from the bowels for nearly three weeks from the beginning of the attack. The course pursued in this case does not seem at

all strange to us now, but it certainly was in opposition to the general current at that time; and if a consultation had been held, it *might* have produced at least some embarrassment, especially if age, armed with all the authority of Hamilton on purgatives, had come down upon the young practitioner. Other cases occurred, of various kinds, impressing upon the mind the curative power of nature, the necessity of regulating the circumstances of the sick, and the importance of means and remedies which quiet the turmoil of disease and relieve its suffering.

It was quite a prevalent idea in the profession, during the first quarter of this century, that opiates only palliate, and never cure disease.[1] Other remedies were used for the purpose of effecting the cure, while the opiates were expected simply to relieve pain and allay restlessness, and thus enable the patient to bear better the searching and expulsive processes of these curative remedies. Besides the decided, and apparently direct curative influence of opium in many painful disorders, as colic for example, it has commonly a greater share of *indirect* curative influence than any other article of the materia medica, because it relieves the agitation and suffering of disease, and thus enables nature to work more effectively in its removal.

How many new modes and remedies have challenged our belief within the past twenty-five years, and yet how few of them have stood the test of prolonged and varied experience! Still, great advances have been made, not so much in discovering new remedies, for there have been few, but in settling principles, and especially in determining the circumstances which should govern us in the application of remedies that have long been in use in the profession. The chief advance has been, in fact, in a sort of sifting of old experience, and we believe a still greater work remains to be done in this same direction. It is not so fascinating, especially to the young adventurer, as the striking out of paths entirely new, but it will bring as substantial rewards. The field is a broad one, and there is enough yet unsettled in medicine to call for strict, patient, and abundant observation.

An experience of a quarter of a century have we had in this country with the treatment of cholera, and yet who will venture to say what the profession has settled upon as *the* proper course of treatment generally for this disease? It must, we think, be the conclusion of every judicious physician, that if this malady presents itself for treatment, he can only apply his general principles, taking especial care not to meddle too much, even in obedience to them. All kinds of remedies and modes of practice have been lauded in turn. Let us take one of the remedies, and see to what conclusions medical men have been driven in regard to it. We will suppose that we see a man recover from cholera after taking enormous doses of calomel. What does it prove? That the calomel cured him? Not as a matter of course. Suppose that you see another man just like him recover without taking any calomel. How now? You infer at least that calomel is not the *sine qua non*. You go further, and ask the question whether the first patient did not recover in spite of the calomel. Especially do you harbour this conclusion, when you come to find that some patients recover in spite of various strong modes of practice, even the perturbing, almost parboiling processes of Thompsonism. And when you find, in addition to all this, that recoveries from the same alarming condition sometimes occur with the mere show of medication of the

[1] This notion is prevalent in the community at large now, and it is not universally discarded by the profession. It is only a little while since that we heard a prominent teacher of medicine avow in the most decided terms his disbelief of the curative power of both opiates and anæsthetics.

homœopathist, you come to the belief that here as well as in most other diseases nature is the chief curer, and that in your medication you must be very careful not to interfere with, but to assist, her salutary efforts. So much for calomel in large doses. Though there is a stronger presumption in favour of this article in smaller doses, has our experience yet fairly settled the point in regard to them? I think not.

A much longer experience have we had with the yellow fever than with cholera, and yet how stands our record here? Is it not the upshot of all our experience that there has not been found any medication that can be relied upon as producing any decided curative influence, and that nature, with judicious nursing, is to be trusted to for the most part?

And here we would drop a suggestion or two in relation to the two diseases mentioned and other epidemics. Every careful observer cannot fail to have noticed that there is in them a something beyond the outward sensible manifestations, the force of which cannot be estimated, for, besides being unknown in its character, it is not by any means always in proportion to these manifestations. And it is this something which has the most to do, often at least, with the question of life and death. Should this unknown element be overlooked? Does it not imperatively demand caution in the practitioner in the employment of his remedies? What judicious physician dare deal, for example, with epidemic dysentery as with sporadic?

In many cases of such diseases the strong impression of the cause, whatever it may be, prostrating the vital forces, is often enhanced by the added strong impression of exhausting remedies. And no doubt many a patient is fortunately saved from this result by the insensibility of the system to other agencies, which we sometimes see produced by overwhelming disease.

The diseases of which we have spoken are important parts of that wide field which invites to the labour of rigid observation. The fact that so little has been settled in them is by no means discouraging, for observation here has been hitherto, for the most part, wrong in its aims. The search has been after what probably never can be found—some mode or remedy exclusively applicable in each disease. Let observation hereafter have for its aim the establishment of principles (that is, broad general facts, not theories or suppositions), and of the relations of nature and art in the treatment of those diseases, and especially the discovery of the proper limitations of the latter, and these portions of the field will then be relieved from the painful uncertainty which now rests over them.

We are not among those who would decry our art. We do not believe that medicine is "the withered branch of science," though it was so spoken of at a meeting of the British Association. Indeed, we think Dr. Holmes guilty of a dereliction of duty in not indignantly repelling the slander, instead of quoting it in a manner which seems to betoken a justification of it. We believe our art to be, taking all things into consideration, in as good a state of advancement as the other sciences. For look at the basis on which the estimate of relative condition should be made. Are we not to take into consideration the difficulties which each has to contend with? And doing this, we have no fears for our science in the comparison. There is no science in which the difficulties which beset investigation are so great, for there is none in which the causes contributing to produce the phenomena to be investigated are so numerous and complex in their action. The physician is to observe not matter alone, as is the chemist, nor spirit, as is the metaphysician, but matter and spirit mysteriously united, and that too in mechanism wonderfully elaborate and

intricate. And this is not all. He is to observe not the natural, orderly movements of this mechanism, but movements disordered by numerous and varied agents, and then acted upon by agents applied for the purpose of restoring their order. Here is difficulty upon difficulty. And yet we look with pride upon the great principles of medicine which have been definitely settled, the remedial means discovered, and the mass of minute details gathered in relation to the circumstances, which modify the application of these principles and remedies in the treatment of individual cases of disease. The very difficulties encountered add to the dignity of our science, and the positive achievements which have been made in spite of them give a glorious record of the past, and hold out bright promise in the future.

It has been fashionable of late for thinking men outside of our profession to decry our science because there is so much in it that is unsettled. We have heard it asserted by one of the most prominent divines of our country, that there always must be so much of uncertainty in regard to the effects of remedies, that practical medicine can hardly be expected ever to rise to the dignity of a science. But we would even claim that medicine *as a science* stands above theology. Theology has less difficulties to contend with than medicine, for it has "the law and the testimony" to which it can appeal, and yet at this present time medicine is in a better condition than theology, because it has more thoroughly cast off the theorizing spirit, and devoted itself to the single aim of the establishment of facts and principles. And this leads us to say that our profession stands on a vantage ground entirely new in this middle of the nineteenth century. Theories have hitherto had great sway over the medical mind, but we trust that we have seen the passing away of the *last* general theory of medicine, that of Broussais, and that the reign of rational observation will henceforward be an undisputed reign.

It is of primary importance that this observation should be directed aright. We have already hinted that our great aim should be to discover the exact circumstances which admit of positive medication, and those which forbid it. But how can this be done? Not by records of general conclusions arrived at by practitioners—these are sometimes of value, that is, if the observer be a good one; but we have had altogether too much of this. Not by records of extraordinary cases—these excite wonder, but teach us little commonly about the treatment of ordinary cases. Not by records of successful cases alone, for here we have but a part of the facts, and sometimes that part which affords us the least instruction. What we want is, faithful, minute records of cases as they arise—the successful and the unsuccessful, the mild and the severe. We want a true picture of actual practice. This will involve great labour it is true; but it is labour which will bring great rewards. It will afford us the means of comparing each his own practice with that of others, and definite results will thus be realized which cannot be obtained in any other way. Such records of any disease, furnished by a dozen accurate, skilful, and honest observers, would be of more value to the profession than all the books that have been written upon it in the ordinary style of general conclusions from experience, mingled perhaps with theoretical speculations.

In receiving the observations of others, it is always to be borne in mind that there is great difference in observers both mentally and morally. Here is a list of cases treated with a certain remedy, and they are cured. Looking at this record alone the inference would be that the grand remedy for the disease has been found. But as the same experience is not realized by

others, the obvious inference must be that there is something wrong in the observation of that physician who made the record. Some, indeed, we are pained to say, make absolutely erroneous statements, as we happen to know in regard to some records that have been paraded on the pages of journals and even transactions of grave medical societies.

There are many other points which we would like to touch upon, did we not fear to exhaust the patience of our readers. The whole subject is one of great interest. It is in truth the grand subject for the consideration of the profession at the present time. And in leaving it we would point out one error into which many may be liable to fall. We fear that some from a natural tendency, others from indolence, and others from a disposition to a routine, may, from being strongly impressed with the danger of doing too much, go to the other extreme, and do too little. While in view of nature's curative agency, it is of paramount importance to know what not to do, it certainly is important to know also *what to do;* and at this latter we shall most assiduously aim if we wish to secure the highest ends of medicine, and be thoroughly faithful to our patients.

One word more in regard to the address of Dr. Holmes, and we are done. The style of it, as an address to a medical society, is not exactly to our taste. We should have liked it better if he had thrown off the air of a popular lecturer, and appeared among his peers with more of the gravity of the physician. But this is comparatively a small matter, for after all the manner of doing a thing is of minor moment compared with the thing itself. And as to the thing in this case, we cannot see so much of heresy in this address as some do, nor the great advantage which it has been said to give to the legions of quackery. Though the author has sometimes caricatured the truth, we may even say sometimes misrepresented it, in his aim at wit and brilliancy, he has committed no such gross error as Forbes did when he said of medicine, "Things have arrived at such a pitch that they cannot be worse—they must mend or end;" and we have no doubt that if *rightly understood* his address will do much more good than harm to the cause of rational medicine. W. H.

BIBLIOGRAPHICAL NOTICES.

Art. XVIII.—*Transactions of American Medical Societies.*

1. *Transactions of the New Jersey State Medical Society for* 1859, *held at the city of Trenton, January 25th and 26th,* 1859, *being the 93d Annual Meeting of the Society.* 8vo. pp. 95.
2. *Proceedings of the sixty-eighth Annual Convention of the Connecticut Medical Society, held at Hartford, May 23d and 24th,* 1860. 8vo. pp. 74.
3. *Medical Communications of the Massachusetts Medical Society.* Vol. ix. No. vi., 1860. Second series, Vol. v. Part vi. 8vo. pp. 90.
4. *Transactions of the Medical Society of the State of New York, for the year* 1860. 8vo. pp. 280.

1. The Transactions of the New Jersey State Medical Society, at its 93d annual session, held at Trenton in January, 1859, were opened by an address from the President, Dr. J. P. Coleman.

The subject of the address is the duty of the members of the Society to aid energetically in the promotion of the best interests of the medical profession throughout the State, in despite of the action of the legislature, by which the State Society has been divested of the legal authority it formerly and for a long series of years possessed of withholding from improper and unqualified persons the right to practise medicine in any part of New Jersey, and of exacting from those upon whom the right was conferred obedience to a code of ethics adapted to elevate the standard, promote the harmony, and increase the usefulness of the entire medical profession of the State.

The address is replete with good sound sense, and contains much valuable advice, of which it is hoped the medical men of New Jersey will not fail to profit. Dr. Coleman does not despair of the success and permanency of the State Society as an independent, voluntary association, and is fully persuaded of its adaptedness to achieve a continued career of usefulness.

The first of the reports is that of the Sussex County Medical Society for 1858, drawn up by Dr. Thomas Ryerson, of Newton.

The year 1858 was characterized throughout by a mild, equable, moist condition of the atmosphere, and a comparative freedom from sensible electrical disturbances. It was, likewise, particularly healthy, very much less sickness of every kind having been met with than usual, and what occurred being of a mild character. Many serious cases of croup, and also of rheumatism, occurred, it is true, in the practice of one physician, during the winter and spring, while, in the fall, there were observed two endemics of diphtheritis. In both these, evidence, we are told, was presented showing that the disease is not, as some have supposed, identical with scarlatina; those who had passed through the latter showing an equal liability to the attack of diphtheritis as those who had not. It was evidently, also, a distinct affection from croup, with which a portion of the patients were attacked.

In one of these epidemics of diphtheritis, Dr. R. states that many of the patients who were attacked were affected with an extremely painful fetid ulceration of the toes, which could not be traced to any want of cleanliness. It had no apparent influence upon the fatal termination of the cases in which it occurred. The disease was in every instance particularly destructive to life—of the cases complicated with croup none recovered.

From the expression "complicated with croup," employed by Dr. Ryerson, we presume that he considers diphtheritis and croup as two distinct diseases, even when present in the same patient. This is certainly an error. While we know

that diphtheritis is not necessarily accompanied by symptoms of croup in any part of its course, and that, on the other hand, croup may occur and run its entire course without any diphtheritic deposit being formed upon any portion of the throat except the larynx. So long as the pseudo-membranous formation is confined to the faucial membrane, leaving the larynx free, no symptoms of croup will occur, but the moment, in diphtheritis, the membraniform deposit extends from the fauces into the larynx, croupal symptoms of a more or less intense character will become developed—not because of the occurrence of any *new* disease, but simply from the extension of the local affection of the throat in a direction which causes it to interfere with the freedom of respiration; the croupal symptoms become then as much a part of the diphtheritic affection with which the patient was first attacked as are any other of its phenomena immediately dependent upon the membraniform deposit in the throat.

Dr. R. notices an endemic of enteritic fever, which occurred in Sussex County during the year 1858. In every case, he states, the pathognomonic eruption was present. The termination of the disease was generally favourable. In some of the cases the veratrum viride was administered, but without, apparently, any decided good effect.

The report embraces some general but very sensible remarks upon certain positions of the child's head in reference to the pelvis, of occasional occurrence, in which, when the natural relations of size obtain, unassisted delivery may take place; but, under other circumstances, manual assistance will be required. In these latter cases, Dr. R. is opposed to the employment of opium, under the plea of calming the supposed spasmodic and partial action of the uterus, or of ergot, for the purpose of augmenting its action.

The report closes with some remarks on the surgical practice within the county during the year 1858.

The femoral artery was successfully tied in an adult male, above the adductor tendon, for the cure of a false aneurism occurring in the middle third of the thigh, of three weeks' standing, the result of a puncture made with a butcher's knife.

The succeeding report, from the Medical Society of Essex County, was presented by Dr. Lehlbach.

Essex County, from its population, its commercial and manufacturing relations, is, perhaps, the most important county of New Jersey. It comprises nearly one-eighth of the entire population of the State, while the population of its principal city, Newark, is between sixty and seventy thousand.

From the mortality statistics of Newark, it appears that the only epidemic of any extent which prevailed in 1858 was one of smallpox. The number of deaths from the disease were 68. In 1856–7, the deaths from smallpox were only 10; in 1855–6, no deaths from the disease occurred, and in 1854–5, only two.

The epidemic of 1858 commenced as early as November, 1857, and continued throughout the winter. Isolated cases occurred as late as June and July, 1858. It is estimated that the entire number of cases that occurred during the continuance of the epidemic was at least three hundred.

During 1858, fewer deaths were occasioned by scarlet fever than in either of the three previous years. In 1855, the deaths from scarlatina were 32; in 1856, 52; in 1857, 277; but in 1858, they only amounted to *twenty-two*.

With respect to veratrum viride Dr. Baldwin remarks, that its employment, which has of late become quite extensive, has not always fulfilled the expectations which, from its reputed virtues, had been raised. A decided diminution of pulse is soon observed to follow its administration, and in many cases marked symptoms of congestion, in one or other of the important organs, have also occurred, and the cases have terminated unfavourably. Given in an attack of hæmoptosis, the effects of the remedy were decidedly injurious, and forced its discontinuance. In all cases of passive congestion, or in which there are present no symptoms of active disease, the use of the veratrum viride has usually proved prejudicial.

The same gentleman remarks that he has administered conjointly the hypophosphite of lime and soda in six cases of well-marked phthisis pulmonalis. After a fair trial the remedy was abandoned, no beneficial effect in either of the cases having been observed. In one or two instances the results were decidedly

prejudicial. The use of the articles being followed by severe dyspnœa, a peculiar sense of oppression at the chest, suppressed expectoration, and, in nearly every case, gastric irritation.

It is stated that Dr. Baldwin has treated successfully the cases of erysipelas which have fallen under his care with quinine, combined with small doses of opium and antimony internally, and with tincture of iodine externally.

Dr. Coles, as well as Drs. Dodd and Osborne, speak highly of creasote as a local application in erysipelas. They have found it almost certainly to abate the inflammation, and to arrest its spread. From 4 to 6 drops of creasote are dissolved in an ounce of water, and this solution is used as a wash. Dr. Osborne also speaks highly of the use of quinine in erysipelas.

Epileptoid convulsions of infants and children were treated with good results by the cyanide of zinc and the ordinary antiphlogistic measures.

In a case of wry-neck (spasmodic), electricity was resorted to, and was followed by good effects. A peculiarity was observed in this case. In the morning, on awaking, there was no distortion of the neck; the position of the head being natural. The distortion came on gradually during the day. At the date of the report, the patient was under the use of iron, with a good diet, and the continuance of the electricity.

To the report of Dr. Lehlbach are appended several interesting communications, comprising the history of sundry cases of disease and surgical operations, from different physicians, with an obstetrical report, embracing 100 cases, by Dr. B. L. Dodd.

Many of the cases are of deep interest. Dr. Lehlbach presents an account of two cases of intermittent fever, accompanied with bronze liver. The first was in a girl 15 years of age, residing in an eminently malarious region, surrounded with ponds and marshes. After she had been laboring for two or three months under intermittent fever, for which nothing in the way of treatment had been done, she was attacked, in the evening of October 25th, 1858, with an intense chill, and died before morning. On examination, the pleural cavities were found distended with a perfectly clear, transparent, light coloured serum, amounting to over two quarts. Not the slightest trace of old or recent inflammation of the pleura could be detected. The lungs were healthy. The pericardium contained an abnormal amount of fluid resembling that in the pleura; it presented no marks of inflammation. The heart and large bloodvessels were healthy. In the peritoneal cavity there was a considerable amount of clear, transparent serum, but no other trace of peritoneal inflammation. The liver was slightly enlarged, and somewhat congested. On the upper surface of its large lobe there were several spots of bronze discoloration, well-marked and distinct. The entire surface of the liver was of a darker hue than natural. The spleen was enlarged, and had the appearance which is usually met with in cases of intermittent fever. The other viscera were sound.

The second case occurred in the practice of Dr. Sayre, of New York. The patient, a lad three years of age, had suffered, during 1858, some seven or eight attacks of intermittent fever of longer or shorter duration, and of the irregular or masked type. In September, 1858, he had an attack of dysentery. He died somewhat suddenly on the morning of the 11th of December. A post-mortem examination showed effusion in both pleura, to the extent of about six ounces; no adhesions; lungs healthy; heart somewhat enlarged, showing hypertrophy with dilatation of left ventricle. Liver much enlarged; when cut bled freely; presented light mottled spots resembling fatty degeneration. Its base was bronzed. Spleen enormously enlarged; texture normal; colour very dark. The kidneys to the eye appeared normal. The rectum contained a quantity of black tarry feces, resembling meconium. Solitary glands throughout much enlarged.

Dr. Stephen Wickes, of Orange, describes an epidemic of jaundice produced by malaria. The epidemic made its appearance about the middle of September, and continued until the last of November. The cases were most numerous during October. It was confined to no particular section of the town. The symptoms were those of simple jaundice. Yellowness of the entire surface; nausea; vomiting of acid matter; general lassitude, oppression, and a sense of great weakness

at the præcordia; slight fever, without periodicity; turbid, saffron-coloured urine; clay-coloured stools.

The disease was confined to no particular age or class of the population. It attacked alike the temperate and intemperate, the sedentary and active. It was not very severe in any case, and fatal in none. The duration of the attack was about three weeks. Nearly five per cent. of a population of 8000 were said to have been attacked. It was, for about six weeks, the only disease observed in Orange. The cases were treated by Dr. Wickes mainly with quinine, with fomentations, and other topical remedies to relieve local pain or distress.

From the obstetrical report of Dr. Dodd we extract the following general summary:—

In 73 cases the average length of the umbilical cord was 23.859 inches; the shortest being 13 inches, the longest 42.5.

There were 94 vertex presentations in 99 cases. In six of these the child was born dead. There were two breech-presentations, one a twin. In both the child was born dead. There was one face-presentation. There was one transverse case. There was one case of twins, one child presenting with the breech, the other with the vertex. There were two cases of placenta prævia, with the head presenting in one, the shoulder in the other. In one of these cases the child was dead.

Of 87 head-presentations, 78 were of the left occipito-iliac anterior position; 3 of the right occipito-iliac anterior position; and 6 of the right occipito-iliac posterior position.

In six cases the child was born before the arrival of the accoucheur.

Several valuable surgical histories are appended to the report from Essex County.

The New Jersey Transactions close with an account of the medical topography of Orange, by Dr. Wickes. Various statistical details and a meteorological table for Newark for the year 1858.

2. The Sixty-eighth Annual Convention of the Connecticut Medical Society, held at Hartford, May, 1860, was opened by an address from the president, Dr. Ashbel Woodward, of Franklin, on the subject of medical ethics, in which is forcibly enforced and illustrated the necessity and beneficial influence of the code for the regulation of the intercourse of physicians, as well among themselves as with their patients and the public at large. The members of the medical profession hold a very peculiar relationship to each other, to those who place themselves under their professional care, and to the communities amid which they are placed. Now it must be apparent that a code defining with clearness this relationship and the special duties and obligations thence arising is absolutely necessary to promote the harmony and minister to the legitimate interest of all the parties concerned. It might, we think, be easily shown that a conscientious adherence to the provisions of the ethical code of the profession is far better adapted to promote the dignity, the social standing, and the moral influence of the physician, than we have any right to expect from the operation of legislative enactments or other extrinsic means. But to derive from our ethical code all the good it is competent to effect, it must be adopted as a bond of union between all who are embraced in its provisions; causing each to experience habitually the same earnest solicitude for the honor and general well-being of his professional colleagues as for his own. It must become the means of harmonizing all who are affected by its provisions, by its exposition and inculcation of the grand moral principles which underlie all that is most beautiful, and generous, and ennobling, connected with the life of the physician. Its mission is the prevention of offences and not to promote dissension and weaken confidence by an inquisitorial spirit which creates the suspicion of offence often in cases where no offence existed. It should teach the physician "to exhibit the benignity of his profession in kindness of manner and integrity of conduct, to preserve professional trusts inviolate, to avoid remarks reflecting on brethren or the faculty at large; to shun representations that may induce doubts in the popular mind respecting the efficacy of the healing art; and to keep clear of all participation in the counsels of men whose course is founded in secrecy or deceit. * * * The walk of the physician should be pure and truthful, marked by an earnest zeal to

discharge every duty well, that when summoned from his stewardship he may appear with a clear conscience before the bar of God. He should cultivate assiduously both the intellect and the heart. Then, in devoting all his best faculties to the relief and melioration of mankind, he will at the same time most effectually 'magnify the office' of his choice."

The first of the professional papers in the Connecticut Transactions is a dissertation on hygiene, by Dr. A. B. Hale, of Norwich.

One of the noblest offices of the physician is unquestionably the prevention of disease, the preservation of the health, and vigour, and usefulness of the human organism, and their prolongation to the latest possible period. That, in many instances, we have it in our power to remove the predisposition to abnormal action, and the more prominent of the causes by which actual disease may be developed in the different organs of the body, is most certain. It has been shown, by a series of well-devised and cautiously conducted observations, in conjunction with close statistical investigations based upon a correct system of registration of births, marriages, and deaths, that the morbific agencies productive of the impaired health and excessive mortality prevalent in certain communities, may be detected, and, by the adoption of appropriate corrective measures, effectually controlled. Even those diseases, the predisposition to which, or the germs from whence they spring are inherited, it has been shown, may be warded off for a very long period, and, after they have become developed, their destructive tendency arrested, and the amount of suffering induced by them reduced by due attention to a correct hygienic course of treatment, and in this manner by gradually improving the constitutions of the children generation after generation, the hereditary taint or tendency may itself be finally eradicated.

The dissertation of Dr. Hale presents a very good outline of the general bearings of the principles of hygiene, so far, at least, as concerns the influence exercised upon the health, life, and well-being of man by the air he breathes, and by the proper exercise and repose of his physical, mental, social, and moral attributes.

From the sanitary report for Hartford, by Dr. L. S. Wilcox, we select the following interesting items.

The annexed table exhibits the deaths of children under 5 years of age that have occurred, during a series of years, from 1855 to 1859, both inclusive, throughout the entire county of Hartford, in the city alone, and in the country towns alone, with the percentage such deaths, in each of these precincts, bears to all the deaths from known causes, that had taken place during the same period.

	Deaths from known causes.			Deaths under five years.			Percentages.		
Years.	County.	City.	Country.	County.	City.	Country.	County.	City.	Country.
1855.	951	263	688	348	101	247	36.6	38.04	35.9
1856.	1062	300	762	455	151	304	42.84	50.33	39.89
1857.	1188	397	791	491	173	318	41.33	43.58	40.2
1858.	1269	369	900	517	168	349	48.62	45.47	38.78
1859.	1212	399	813	458	199	259	37.79	49.87	31.86
Average percentages for the five years . . .							41.43	45.46	37.33

It will be seen by this comparison, that the number of deaths of children at five years and under in the city of Hartford, is more than 8 per cent. larger than in the country, while the percentage for the whole county rises to the high figure of 41.43.

The following exhibit of the ratio of deaths in males to those of females during some of the decennial periods of life for five years—1855–59—is interesting in many points of view.

In those from 20 to 30 years of age, the deaths were of males, 317, of females 422; from 30 to 40, males 256, females 253; from 40 to 50, males 222, females 178; from 50 to 60, males 175, females 196; from 60 to 70, males 241, females 204; from 90 to 100, males 26, females 31.

It will thus be seen that woman's viability, between *twenty* and *thirty*, is much lower than man's. At this period she enters upon maternity, and for maternity, with instinctive heroism, she jeopards life. The two sexes tread the

next decennial period with nearly equal pace; after which man receives his burdens—grave responsibilities, wearisome anxieties, and inexorable ambition. Woman, on the other hand, rests from maternity, and gathers strength for future struggle; her viability rises while that of man diminishes. At *sixty* the struggle is over; the burden of sex is thrown off by woman; her life henceforth though passionless is not joyless—health and strength beam mildly forth from a nature purified and serene; while at *sixty* man, too oft bereft, disappointed, and worn down, hastens his steps, and when the weary goal of *ninety* years is reached, weak woman oft bears her weaker companion to the grave, and still lives to plant the myrtle there.

Dr. Wilcox presents a comparison between the deaths from consumption in the city of Hartford, and in the county. He believes that such a comparison is just, inasmuch as, in all appreciable respects, Hartford and the country towns are similarly circumstanced in respect to climate and soil.

The percentage of deaths from consumption in 1855 was, for the city 17; for the country 20.8; in 1856, city 19, country 20.1; in 1857, city 9.8, country 18.46; in 1858, city 12.46, country 19.9; in 1859, city 10.27, country 18.08; average percentage for the five years, city 13.77, country 19.47.

From these data it appears that the whole number of deaths from consumption during the five years preceding 1860, was nearly *six per cent.* larger in the country than in the city. To show that this large difference in favour of the city cannot be accounted for from the fact that the proportionate number of deaths in children is so much greater in the city than the country, Dr. W. presents the percentage of deaths from consumption to all deaths from known causes, in persons over *ten* years of age, during the five years to the end of 1859—which were, for the city 27.6, for the country 33.13. The difference in favour of the city is thus scarcely diminished, still standing at nearly *six per cent.* The percentages of deaths from consumption to the entire population is also in favour of the city. They stand at 3.31 for the country, at 1.82 for the city.

To the volume of the Connecticut proceedings are appended biographical notices of several of the deceased members of the State Medical Society.

3. All that have reached us of the "Medical Communications," made to the Massachusetts Medical Society, at its Session of May 30, of the present year, is that portion which contains the minutes of the session, some biographical notices, and the annual address of Dr. Oliver Wendell Holmes. This last has received a special notice in our Review Department.

4. The Transactions of the Medical Society of the State of New York for the year 1860, commence with an inaugural address by the President, Dr. B. Fordyce Barker, of New York City. The address is of a strictly business character. It embraces some judicious suggestions in relation to the duties of the State Society to the medical profession and to the public. Reference is made to its published transactions—the interesting and valuable character of the contributions embraced in them, and their appropriateness, in consequence of their extended circulation, as a medium for the communication of the results of the observations and investigations of the physicians of the State. Attention is also called to the important measures connected with the well-being of the profession, and calculated to augment its usefulness and efficiency, that have been suggested and carried into successful operation by the Society. Among these are especially particularized the origination of the convention for the preparation and decennial revision of a National Pharmacopœia and the organization of the convention which eventuated in the permanent establishment of the American Medical Association.

A well-deserved eulogy is bestowed by Dr. Barker on the United States Pharmacopœia and the admirable commentary upon it, the Dispensatory of Drs. Bache and Wood. The last-named work being, perhaps, more universally consulted and appreciated by the physicians and pharmaceutists of this country than any other of the more familiar of our professional works.

A somewhat extended paper comprising "Notes upon New Remedies," fol-

lows the address of the president. It was prepared for and read by Dr. Ed. R. Squib originally before the Medical Society of King's County. The remedies noticed are, *Chromic acid*, as a useful escharotic—*Sulphurous acid*, as a remedy in certain affections of the skin—*Fused nitrate of silver*, containing a portion of chloride, by which the strength of the sticks are increased, and their solubility diminished—*Subcarbonate of bismuth*, as a substitute for the subnitrate in all the cases in which the latter has been found useful—*The sulphate of iron and ammonia*, which, while similar in its therapeutic properties to the sesquichloride, is less stimulating in its action, more efficacious as an astringent tonic, and less liable to produce nausea or headache—*Solution of perchloride of iron*, as a hæmostatic, for the injection of aneurismal sacs, and, internally, in cases of erysipelas, anasarca, scarlatina—*Solution of persulphate of iron*, chiefly as a hæmostatic—*Pyrophosphate of iron*, as an agreeable non-stimulant tonic—*Syrup of pyrophosphate of iron*, similar in its therapeutic properties to the last—*Compound liquor of opium*—*Permanganate of iron*, as an escharotic, disinfectant, and deodorizant—*Chlorate of soda*, as a substitute for chlorate of potassa. The cursory remarks offered by Dr. Squibb in respect to the preparation, composition, and remedial virtues of the articles just named will be found both interesting and instructive.

The paper closes with some very pertinent remarks on dragées, granules, sugar-coated pills, fluid extracts, etc., forms of remedial substances which are now imported or manufactured extensively as special articles of trade; and often, it is to be feared, their preparation being intrusted to incompetent, careless, and irresponsible persons, little confidence can be placed either in the genuineness and purity of the active substances of which they are said to be composed, or in the exactitude of the proportions of these which they respectively contain. Dr. Squibb suggests the propriety of the physician directing the forms of medicine just referred to, should he feel inclined to prescribe them, to be procured only of such pharmaceutists as prepare themselves these and all other medicinal articles, the genuineness and activity of which cannot be determined by reliable tests.

The next article is the report of the Committee on New York City Milk, by Dr. S. R. Percy, communicated to the State Society by the New York Academy of Medicine. Of this very able and highly interesting report we shall be able to present only the general results at which the committee have arrived, after, apparently, a very full, candid, and cautious investigation of the subject.

"1st. The housing of milch cows in great numbers within the narrow space allotted to them in the distillery stables of New York, Brooklyn, and Williamsburg, is of itself sufficient to vitiate their health, and render their milk unwholesome. But in the actual condition of the stables, these deleterious effects are materially augmented by want of cleanliness, insufficient light, and a vitiated atmosphere, not to speak of the restraint and want of exercise to which the cows are subjected, nor of the unwholesome food supplied to them.

"2d. Many of the animals confined in these stables were found in a sickly condition, and on careful inquiry at one of the largest of these stables, we ascertained that the annual mortality among the cows confined there was not less than ten per cent.

"3d. Such of the cows at these establishments as remain comparatively healthy, are retained without once leaving the stable, as long as they continue to yield a sufficiency of milk, usually for about a year, after which they are fattened for the market, slaughtered, and sold as beef. The beef produced from these animals is unsavory, and easily recognized by its offensive odour, and this odour is not dissipated even by the process of cooking. The fibre of this beef is flaccid, and its cellular tissue is found infiltrated with watery fluids instead of solid fat. Hence, in the process of cooking it shrivels, and presents other appearances by which the practised eye can readily distinguish it from the beef of healthy grass-fed cattle.

"4th. The swill, which constituted the principal food of the cows at these stables, and which is but the refuse material left after the process of distillation, is, even at the period of its withdrawal from the alembic, and long before it is distributed to the feeding troughs, found to be highly charged with acetic acid.

Its acidulous quality, intermixed with a sort of saccharine and farinaceous flavour, is not very disagreeable to the taste, but, taken into the stomach, the swill operates briskly as a purgative, disturbing the bowels, and augmenting the urinary secretions. These effects were sensibly experienced from the use of it by two of the members of the committee, and from the continual purging of the cattle, and the excessive amount of urinary secretion, we are led to the belief that its effect upon the cows is not materially different from its effect upon the human system.

"5th. The milk of these cows does not exhibit the characteristics of wholesome milk. It presents almost invariably an acid reaction, whilst the milk from healthy grass-fed cows is, when first drawn, always alkaline. The acid quality of this distillery milk, it is true, is not perceptible to the taste while the milk is fresh, but it is always recognizable by chemical tests. And this feature is of itself sufficient to condemn the milk in question as an article of food, especially for young children. This remark applies to the milk procured from such of the cows in those stables as appear to be in good health. It must apply with still greater force against the milk procured from such of them as are actually diseased. And it is ascertained that the milk from the diseased cows is mixed with that from the others, and distributed to consumers.

"6th. The cases collected under the direction of the committee, by Dr. Percy, demonstrate the fact, independent of any chemical examination, or any *à priori* reasoning, that the milk procured from these swill-fed animals is injurious to those who use it. The difficulty of authenticating cases of this sort, and of establishing the relation of cause and effect between the milk and the diseases which are attributed to the use of it, will be sufficiently understood by every medical observer, and but for the unwillingness of the committee to adduce any cases in which this connection could not be clearly established, numerous similar instances would have been added to those which Dr. Percy has reported. One instance, within the knowledge of the committee, serves to show that the housing of cows in private stables, even where these cows are fed on wholesome food, and kept carefully under the eye of those who use the milk in their own families, so long as the cows are restricted to the stable, and deprived of their appropriate exercise in the open air, deteriorates the quality of the milk to such a degree that it cannot in all cases be used with safety as food for young children."

From all the facts collected by them, the committee consider that it is rendered evident that the traffic in the milk of swill-fed cows is one which is detrimental to the health of the community, and should, therefore, be discontinued.

A paper on hypodermic medication, by Dr. James M. Sturdevant, is the next in order. The plan of medication advocated by Dr. S. is by the injection of medical substances in solution through a perforated needle introduced beneath the integuments in the immediate vicinity of any local disease upon which they are intended to act. It is chiefly useful in cases of intense neuralgia of the more superficial nerves.

A long contribution is presented by Dr. B. Lee, of New York, on the general pathology of the skin and its treatment by warmth and moisture. Dr. L. lays no claim to originality in the remarks presented by him. His sole object throughout the contribution being to enforce, by an appeal to the recorded observations of acknowledged masters in the science, the very serious objections to which the ordinary practice of applying to the skin in cases of injury and disease, poultices, ointments, and medicated cataplasms, and the vast superiority over these, which are often offensive, and sometimes positively injurious, of the simple water dressing, in cases not only of clean incisions, but in those, also, of lacerations, burns, ulcers, and inflammation. The entire communication is marked by correct principles and judicious practical precepts ably enforced.

The ensuing paper is by Dr. Daniel Holmes, of Canton, Pa. It is the history of a case of fracture of the neck of the femur within the capsule, which eventuated in bony union within fourteen weeks and three days. After a careful perusal of the history of the case, as detailed by Dr. H., with a close examination of the post-mortem specimen of the fractured neck of the bone, which was exhibited by the Doctor at the session of the Pennsylvania Medical Society of the present

year, we are convinced of the entire correctness of the resolution presented by Dr. March, and adopted by the New York State Medical Society, which affirms that the history and specimen afford satisfactory evidence of the existence of a complete fracture, not impacted, perfectly within the capsular ligament, which had become so firmly united as not to admit of separation without the use of great violence.

The object of the following paper, on extirpation of the eye, by Dr. John Ball, of Brooklyn, is chiefly to recommend a species of forceps for seizing and holding the ball of the eye during the operation of extirpation. The blades of the instrument are curved to suit the form of the globe of the eye, to which they can be attached, and afterwards detached from it by means of a slide. The points of the curved blades are formed into sharp hooks, which are sufficiently prominent to penetrate the coats of the eye, but not long enough to pass through them, consequently preventing the escape of the humours, as occurs when the ligature is employed, and enabling the specimen to be preserved, if desirable, for pathological illustration.

A case of non-malignant exophthalmia, occurring in a coloured female 27 years old, is presented by Dr. T. H. Squire, of Elmira. After the sight of one eye had been destroyed, and that of the other greatly impaired, by a rupture of the coats, a general improvement took place in the health of the patient, and a recuperative process commenced in the protruded eyeballs, which, Dr. S. thinks, may, perhaps, in the end, restore them to something like their original form and position.

The cases of gunshot wounds, related by Drs. S. D. Willard and N. C. Husted, in the ninth and tenth communications, and the brief notice of two cases of tumours, one of the breast, and the other of the uterus, by Dr. H. Corliss, in the eleventh communication, are full of interest.

The twelfth communication is the history of a case of direct inguinal hernia of the right side, by Dr. Charles Barrows. It occurred in a farmer, 65 years of age, after severe labour in the hayfield. An operation at the proper period being positively rejected by the patient, gangrene set in, and on the eighth day the hernial tumour sloughed, giving discharge, by the abnormal opening thus formed, of a fetid greenish fluid, with a small quantity of hardened feces. Under a very simple treatment, the artificial anus in the groin became completely closed by the end of about the fifth week after the occurrence of the sloughing.

The case in all its aspects is a curious one—a direct inguinal hernia is confessedly of very rare occurrence. The most instructive feature in the case is, however, its successful termination under the most unfavourable circumstances, and with but little aid, medical or chirurgical.

A case of quadruple birth is detailed by Dr. A. Goodman, and two interesting cases of extra-uterine pregnancy, by Dr. John Swinburne, of Albany. Both of the latter cases were ovarian; in neither was there a fully developed fœtus discovered after death.

The sixteenth communication is the history of a case of facial paralysis in a lad fourteen years of age, related by Dr. F. Evarts, of Oswego. The paralysis was, probably, dependent upon the irritation caused by the evolution of the second molar tooth of the upper jaw; it disappeared after the free lancing of the gums, the use of mild cathartics to keep the bowels soluble; frictions to the face with equal parts of soap liniment and tincture of capsicum, and the application of galvanism.

The next communication is the history of a case of supposed recurrence of measles, by Dr. Nelson Nivison. The patient was a female, thirteen years old. In March, 1858, she passed, it is stated, through a very favourable attack of measles. In place, however, of recovering her normal state of health, she continued to be affected with symptoms of severe bronchitis, a harassing cough, and copious expectoration. At the end of two months there was considerable emaciation, with night-sweats, hectic fever, and purulent expectoration. In the latter there were occasionally present portions of miliary tubercle. These unfavourable symptoms steadily increased until near the end of the third month, when nearly all hope of a return of health was abandoned. At this period, however, a marked change suddenly occurred. All the usual prodromeia of measles

now again presented themselves, and the morbillous eruption was confidently predicted. On the third day it began to appear on the face, and soon afterwards over nearly the entire body. The disease pursued its usual course. After remaining for three or four days the eruption disappeared in the ordinary way. From this time on the pulmonary symptoms began to subside, and the health of the patient was gradually restored. Six months from the original attack there remained only a troublesome eczema, and certain strumous symptoms, which had not entirely disappeared by the 1st of January, 1860. But from the rapid improvement of the patient her entire restoration to health is confidently anticipated.

This case is a most singular one, and altogether strictly unique. Not because there took place in it a second attack of measles, for many of such are on record; but from the character and intensity of the symptoms which continued after the disappearance of the measles on its first occurrence, and their immediate subsidence upon the appearance of a second attack of measles after an interval of several months. The question very naturally suggests itself, was the case, in fact, an example of two separate and independent attacks of measles, or only of a recession and recurrence of the original disease.

The supervention of the pulmonary symptoms immediately after the disappearance of the first eruption, and their subsidence simultaneously with the second, would seem to favour the latter hypothesis. In further support of which it may also be stated that the patient was not known to have been exposed to the contagion of measles previous the second attack. On the other hand, the fact may be adduced that the two attacks were ushered in by all the usual prodrometa. In both the eruption remained on the surface the usual time, and disappeared gradually with the characteristic desquamation. In cases of retrocession of measles alarming symptoms almost immediately ensue, whereas, in the case before us, the most serious symptoms came on slowly and insidiously, and did not attain the maximum of intensity till some months after the disappearance of the eruption of the first attack. That the two attacks in this case were both of genuine measles was proved, Dr. N. thinks, by the pathognomonic symptoms being well marked in both, and from the fact that measles, on both occasions, were communicated by the patient to other children.

The two following communications, one from the Medical Society of King's County, and the other from that of Queen's County, have only a local interest.

The twentieth communication is a condensed statement of what has been attempted for the advancement of medical education by the medical conventions of 1846 and '47, and by the American Medical Association, since its organization in 1847, prepared by Dr. Thomas W. Blatchford. Interesting as is the bird's-eye view it presents of the action of our professional congress on a subject which concerns all who have at heart the true dignity and interests of the medical profession, we can but refer to the communication, it being one, as all will perceive, which does not admit of analysis.

The succeeding communication is the report of a committee on the subject of "a second degree in medicine. In this report the real question at issue would seem to us to have been entirely evaded. Is a degree preliminary to that of 'Doctor in Medicine advisable; will it aid the cause of medical education and insure the competency of the actual' Doctors?" Such were the inquiries which called for the attention of the committee; to neither of them, however, do they appear to have given any consideration. We confess that we are no advocates for two degrees in medicine. With an ample scheme of medical education, uniform throughout the United States, and faithfully carried out in practice, and the subjection of every candidate for graduation to such an examination as would fully test his competency to enter upon the practice of medicine in all its branches, we cannot see any harm that could possibly result from his being admitted at once to the doctorate. If he be required to take, first, an inferior degree, and to wait a certain period previously to his receiving the diploma of doctor, whether this be conferred upon a second examination as to competency, or as a matter of right, even could such a system be carried out in practice, it would be liable to very serious abuses which would more than neutralize any of the supposed benefits anticipated from it.

The twenty-second communication is the report of a committee on the establishment, by a legislative act, of a State commissioner of lunacy. In view of the many difficulties and abuses attendant on the present plan by which the state of mind of an individual may be established in the several circumstances in which it can become necessary to determine with certainty his sanity or insanity, it is proposed by the committee that an act should be passed by the legislature of New York providing for the appointment of a competent commissioner, whose duty shall be personally to examine into the actual condition of the mind in persons accused of insanity, with a view to their proper treatment, and to the appointment of legal trustees for the management of their estates, or in those on whose behalf the plea of insanity is set up with the view of evading the punishment of any criminal act of which they stand indicted or have been convicted. The subject is one of immense importance in all its bearings. The plan suggested in the report before us—of intrusting the grave and often very difficult question of the sanity or insanity of a citizen to the decision of a single commissioner—however competent, is liable to very grave objections. We do not, indeed, perceive that it has anything to recommend it over the plan of allowing one of the superior courts or some equally safe and reliable authority to appoint in each case where the sanity of mind of an individual is questioned, a commission composed of three or more physicians known to be in all respects competent to decide between the sane and insane; sufficient time and opportunity being allowed to enable them to arrive at an accurate verdict.

The report of the committee on medical and surgical statistics follows next in order. It speaks favourably of the results of the system of voluntary registration adopted by the New York State Society. Although yet in its infancy, and encumbered with many apparent difficulties, it is believed to have already accomplished much more than could have been reasonably anticipated by its original projectors. "Not only has the attention of the profession been aroused to the great value of reliable registrations of disease, but a vast collection of valuable facts has been secured, from every portion of the Empire State, exhibiting, when duly arranged, the most accurate data in the possession of our profession, for estimating and comparing the causes of death, the prevalence of epidemics or of disease of any form, the relative mortality of synonymous diseases in different sections of the State, and the influence of occupation, civil condition, age, colour, season, sex, &c., in the production and modification of disease. It also exhibits reliable statistics of surgical and obstetrical practice."

From what has been already accomplished the committee feel encouraged in their efforts to place the system of voluntary registration on a permanent basis, and to render it still more useful and universally adopted by the profession. The whole of the statistics collected by the committee it is proposed to present, properly arranged and collated, in 1863, when the term of service of the present committee expires.

In the ensuing two communications, 24 and 25, a subject is discussed of no little importance to the practitioner and his patients—the value, purity, and reliability of the solid and fluid extracts—active principles, and sugar-coated pills, kept for sale as standard pharmaceutic preparations by nearly all, if not all, of our druggists and apothecaries. The first of these communications is a report of a committee of the New York State Medical Society, and the second a report from Dr. Samuel R. Percy, of New York City. Both deserve the attentive consideration of every member of the profession. They appear to have been drawn up with great caution and the utmost candour, after a careful consideration of the subjects discussed, and are replete with valuable suggestions in respect to a class of pharmaceutical preparations that some would fain attempt to make supersede all others.

According to Dr. Percy, the objections to the fluid extracts, and extracts of all descriptions, are, that they are not, and cannot be, uniform in their strength, because the plants from which they are derived possess different amounts of therapeutic properties; because they are liable, equally with the plant itself, to destructive alterations; because each new parcel or preparation must be tested separately before its remedial value can be known; "in short, because *they possess no positive value.*"

The directions for the use of the extracts, emanating from certain laboratories, printed upon the labels or envelops, are referred to as of an especially objectionable character. The most objectionable is the label which accompanies the fluid extract of the root of the cotton plant. Its language amounts pretty much to an invitation to make use of it as an abortant—it being recommended as one certain in its effects, and which may be taken without any risk of injury to the general health.

A report follows on the propriety of memorializing the legislature of New York for the enactment of more stringent measures for the suppression of the crime of abortion, in obedience to a request from the American Medical Association.

After a brief abstract of the mortality of Brooklyn, by Dr. Charles S. Goodrich, showing that the ratio of deaths to population was there as *one* to 53, the Transactions of 1860 close with biographical notices of the recently deceased members of the Society. D. F. C.

ART. XIX.—*Reports of American Institutions for the Insane.*

1. *Of the McLean Asylum, for the year* 185
2. *Of the Retreat at Hartford, Conn., for the fiscal year* 1859–60.
3. *Of the Pennsylvania Hospital, for the year* 1859.
4. *Of the Friends' Asylum, Philadelphia, for the fiscal year* 1859–60.
5. *Of the Mount Hope Institution, for the year* 1859.
6. *Of the Central Ohio Asylum, for the fiscal year* 1858–9.
7. *Of the Southern Ohio Asylum, for the fiscal year* 1858–9.

1. AMONG the oldest and most successful of our institutions for the cure of the insane and the treatment of their malady is the *McLean Asylum.* Though established in the comparative infancy of that enterprise for meliorating the condition of the insane which has now grown to such manly proportions, it has been enabled, by abundant pecuniary means, and by fortunate selections of able men for its executive officers, to keep pace with the progress of improvement; and, despite those original architectural defects which could not be wholly remedied by subsequent action, it now stands among the best conducted and most comfortable hospitals of its kind in the United States.

	Men.	Women.	Total.
Patients in hospital, January 1, 1859	87	99	186
Admitted in course of the year	73	58	131
Whole number	160	157	317
Discharged, including deaths	75	67	142
Remaining, December 31, 1859	85	90	175
Of those discharged, there were cured	33	28	61
Died	14	14	28

Causes of death.—Chronic insanity, 15; typhomania, 3; *paralysie générale,* 3; epilepsy, 4; apoplexy, dysentery, and chronic diarrhœa, 1 each.

As it has not been the practice, at this institution, to enter into so minute an account of the means for moral treatment as at some other establishments, we extract, in full, what the report before us says upon the subject:—

"We are enabled to furnish our family with a great variety of amusements and an abundance of healthful recreation. Billiard-tables, of which we have four, and the two bowling-alleys, are much used, especially by the gentlemen. Two saddle ponies, which have been purchased within the year, are daily used within the grounds by the ladies. They are not only great pets, but are a valuable means of promoting health, and are gentle, and easily managed by the many who ride them. We have an abundance of carriage-horses, and the various beautiful drives in the vicinity are made familiar by their daily use. During the sleighing season extra exertion is made for all to enjoy it frequently. Large sleighs, drawn by four and six horses, have taken parties of forty or fifty through

the adjoining towns, returning them safely and with excellent appetites for a nice dinner or supper prepared for the occasion. Within doors, chess, cards, backgammon, and bagatelle are played and highly enjoyed. Large additions have been made to the library, and books are as ever in constant use and great demand. Much sewing, of all descriptions, is accomplished by the ladies. Almost every apartment has daily a company busily at work, while one may be reading aloud, and the amount of neatly-finished embroidery, netting, knitting, and crocheting, is a proof of their skilful industry and good taste. Music brings to the insane especial comfort and benefit, and we have abundant facilities for its cultivation and enjoyment. The parlors, the principal wards of the ladies' wing, and many of the patients' rooms are furnished each with a piano-forte. We always have accomplished players, and often good singers enough to afford a pleasant musical entertainment. Those who are well enough and whose tastes thus incline them, frequently go to concerts and lectures in the city, and a large number attend public worship every Sunday, at the various churches in the vicinity. Each Sunday evening a sermon is read in one of the wings, which all who choose can hear, and afterwards an hour is spent in singing familiar sacred tunes, in which many voices heartily join. On Christmas, New Years, the Twenty-Second of February, the Fourth of July, and other holidays, parties have been given. These have been largely attended. Music, dancing, cards, stereoscopic views, engravings, conversation, and sometimes ventriloquism, have caused the evenings to pass very pleasantly to both guests and hosts."

In former notices of reports we have presented, wholly or in part, the remarks of several of the superintendents of hospitals upon the education of the young in its relation to mental alienation. As the subject, in our estimation, is second to none connected with the etiology of the malady, we do not hesitate to present to our readers the views of Dr. Tyler:—

"The education of a child commences with the development of its capacity to exercise its will; and every hour of every day thereafter, until the time is reached when a person is assumed to be capable of self-government, calls for an enlightened supervision on the part of the parent and teacher, of the development of every mental and moral faculty. Sufficient and proper aliment should be provided for the intellect, and it must not be overtasked; the tastes should be carefully cultivated; the sentiments rightly directed; and the passions rigidly but kindly schooled. A ready obedience to law and right should, from the first, be inculcated, and the great lesson of self-control be constantly and continually taught. One of the earliest and latest precepts to be impressed is, that a person is and always must be a learner—a respecter of facts; and from careful and truthful observation, remembrance, and comparison of facts, he is to acquire both mental discipline and useful knowledge. An opposite to such a course is too common, and is the result of carelessness of consequences, or of that mistaken affection which practically regards indulgence as the chief good. The child rules the household; every wish is gratified, every whim humoured, and no inclination is thwarted. Every smart thing said and done is applauded, and recounted to others, and the child grows up conceited, passionate, and wilful, with no conception of any object in life other than self-gratification. His intellect is at the mercy of his inclinations; and the chances that such a distorted and uneven growth will be safely and satisfactorily cultivated and disciplined in after years by the amenities and severities of its experience, and escape serious mental disease, are exceedingly small; as small as that a person who gratifies every caprice of appetite for food or drink, at all times and places, will escape an indigestion.

"The object to be aimed at in education is the symmetrical development of the mental, moral, and physical powers. If any of these are cultivated at the expense and to the neglect of the rest, deformity is the result, which if it does not amount to technical insanity, affords a certain ill-balance to annoy or amuse a neighbourhood or a nation. If the intellectual faculties alone are cultivated, though it be in the most patient, philosophical, and thorough manner, and the ultimatum in every department of physical and metaphysical science and knowledge be reached, still the person, from not recognizing his real relations to his fellows, will be found devoid of sympathy and benevolence; cold, selfish, and in-

human; and, born with a brain which was made not only to think, but to feel—to feel an interest in his fellow-creatures, and love and reverence for his God—is it likely that under so partial a use, the whole organ, which is so thoroughly sympathetic in all its parts, will long remain healthy? and this entirely aside from any danger incurred from its unremitting and energetic use.

"If the moral powers alone, or chiefly, are exercised; if the emotions and passions are chiefly cherished and stimulated, and followed to the neglect of the guidance of the judgment, it is plain to see that all sorts of extravagances may be committed in things both good and bad—grave and gay; every fanaticism in religion and philanthropy, every foolery of fancy and fun, every excess of pleasure and passion, and every absurdity of sorrow and fear. By the violence and license of action, the emotions become uncontrollable, and the person is insane; or the intellect, especially if undisciplined, sympathizes and suffers.

"Again, if the physical powers alone are cared for, nourished, and cultivated, the person approximates more or less to a mental and moral dwarf—a creature of instincts and appetite—a human brute."

2. In the report for the fiscal year 1859–60 of the *Retreat for the Insane*, at Hartford, Conn., the statistics under those heads from which we are accustomed to quote are as follows:—

	Men.	Women.	Total.
Patients in the Retreat, April 1, 1859	105	110	215
Admitted in course of the year	80	88	168
Whole number	185	198	383
Discharged, including deaths	76	80	156
Remaining, March 31, 1860	109	118	227
Of those discharged, there were cured	34	36	70
Died	9	11	20

Causes of death.—"Six were from exhaustion or general debility; two from exhaustion from acute mania; two from consumption; two from apoplexy; three from dysentery; and one each from disease of the digestive organs, disease of the lungs, pneumonia, hemiplegia, and general paralysis."

The following report of cases in reference to sex will be found interesting:—

"Since 1843, the whole number of patients admitted is 2,328, of whom 1,047 were males, and 1,281 were females. Of the 1,047 males, 396 or 37.8 per cent. have been discharged recovered. Of the 1,281 females, 615, or 48 per cent., have been discharged recovered. It is evident that our female patients are admitted at an earlier and more curable stage than our males. One reason of this may be that the domestic organization, or "home," is more thoroughly broken up by the insanity of the wife and mother, than by that of the husband and father. In the latter case, it may go on with comparatively little disturbance; in the former, the essential element fails and dependence must be had upon external aid, and, consequently, the greater necessity exists for a prompt removal to an asylum. Although generally more difficult to control, they are, I think, more curable than the other sex; their home attachments are stronger, they realize more fully the importance of their services in the circle of home duties, and naturally, therefore, respond more readily to our efforts to induce a more perfect self-control as the first step towards recovery. They are also more impressible, they more keenly and readily appreciate the genial and soothing influences of those means of moral treatment to which I have so frequently alluded, and upon which I so greatly depend. Thus they are more easily led to acquiesce in my views, and, ultimately, to coöperate with me in that general course of treatment which is best adapted to attain the longed-for result. The use of the needle, and the larger number of domestic female employments, gives them also a great variety at least of passing occupation.

"All this is an illustration of the greater importance and efficiency of woman in her especial element, that sphere of boundless influence—home. It is there that she will find the place of the fullest development of her moral and intellectual influence, for it is pre-eminently, and rightfully, a starting-point of all social elevation. That is one of the errors of the times, most pregnant of evil, which

shortens the period of her domestic and educational training, disregards her physical development, and ranks the external accomplishments of person, manner, and dress, above the expansion of the intellect, the refinement of the taste, the elevation of the sentiment, and the most important of all to human happiness, the cultivation of the heart, thus sending her forth into society, to play her high part on the stage of life, with hardly a qualification to meet the responsible duties of wife and mother. * * * * Over three thousand cases of insanity have now come under my direct care and observation. In a large proportion of those cases whose history I could obtain, I have found that the remote and predisposing causes of insanity could be plainly traced to the malign influences of childhood. These influences I cannot at this time enumerate or consider, but their knowledge justifies the assertion that when the duty of making home wise and happy shall be better realized, we shall have in our land less of vice and crime, and much less of insanity."

In allusion to a portion of a former report, in which those laborious duties and wearing cares of the wives of farmers and mechanics, the exhausting influence of which often gives origin to insanity, Dr. Butler relates the following anecdote:—

"One of our worthy female patients remarked one day to a lady, 'Only think of it! Dr. Butler is keeping me here, and I have six children and fourteen cows to take care of at home.' 'Twenty excellent reasons for your remaining here till you are cured,' was the timely answer. They were the twenty reasons which had made her insane."

One of the greatest needs of the Retreat has been supplied, in the course of the past year, by the construction of an "amusement hall," 61 feet in length, by 21 in breadth. The report contains a programme of "the order of exercises" in this hall on the evening of the 13th of March last. It consists of music, recitations, both original and selected, and, at the close, a farce. "During the performances," says Dr. Butler, "the hall was crowded with patients and a few visitors from the city. The most perfect order, of course, prevailed, as usual. During the performance of the amusing farce—'Box and Cox,' the principal actors in which were two of our convalescent gentlemen, I had taken my seat near several of our most inveterate cases of melancholia, to whom smiles, not to say laughter, had long been strangers. They gradually yielded to the genial influences of the amusing scene, and joined right heartily in the laughter which the capital performances drew from us all. They have been better ever since."

From the subsequent remarks upon moral treatment, we make one extract which may haply enable persons who have never visited a modern hospital for the insane, to form a more accurate opinion of a large portion of the persons who are treated in such hospitals, than they may have derived from popular opinions or traditional notions.

"The longer my experience, the stronger my confidence in the power of some articles of the Materia Medica over diseases of the mind. But those moral means are so pleasant in the using! they so soothe the heart, weary with long waiting for health and home, and for a time, at least, they banish from the mind those delusions which 'make the worse appear the better reason.' Amid these weary hours and sad or fearful imaginings, music, games, all social or intellectual gatherings and recreations, art in its various forms of beauty, pictures, engravings, statuary, &c., and (above all other things) flowers—these are the best of medicines, the most blessed of remedial means. If any one doubts this, let them bring me a picture or a bouquet of flowers and I will find him scores of witnesses that this is not word-painting, and that I have not in the slightest degree exaggerated the truth. I have not had for the year such grateful thanks for any one act of professional service, or personal kindness, as for the gift, the other day, to a poor nervous invalid, of a few early violets."

3. The account of the *Pennsylvania Hospital for the Insane*, which was published in the issue of this Journal for April last, relieving us as it does of the duty of giving a more brief and far more imperfect description of the new department for females, will obviate the necessity of occupying much space with a notice of Dr. Kirkbride's last report.

	Men.	Women.	Total.
Patients in the Hospital, January 1, 1859 .	115	115	230
Admitted in course of the year . . .	94	77	171
Whole number	209	192	401
Discharged, including deaths	77	70	147
Remaining December 31, 1859 . . .	132	122	254
Of those discharged, there were cured . .			94
Died	10	4	14

Causes of death.—Acute mania, 3; "exhaustion induced by chronic mania and enfeebled digestion," 2; softening of the brain, 2; tubercular consumption, 2; chronic diarrhœa, 2; chronic dysentery, 1; strangulated hernia, 1.

"The fourteenth annual course of lectures and evening entertainments continued during the usual period of nine months, on not less than three evenings of each week, making a total of 121. The lecture-room, at the new hospital, has been arranged specially for such a course, the value of which is constantly increasing, and which could not be dispensed with, or even lessened in extent, without materially diminishing the resources and usefulness of the institution. The number of evenings devoted to these entertainments will be the same at each building—alternating—so that, hereafter, not less than 242 evenings in each year will be thus occupied. Whenever there are particular attractions at either department, those likely to appreciate them from the other, may be, and frequently are, allowed to attend."

4. The principal items in the statistics of the *Friends' Asylum*, for the year ending February 29th, 1860, are as follows:—

	Men.	Women.	Total.
Patients at the beginning of the year . .	31	31	62
Admitted in course of the year . . .	12	13	25
Whole number	43	44	87
Discharged, including deaths . . .	14	15	29
Remaining at the end of the year . .	29	29	58
Of those discharged, there were cured .	6	4	10
Died	3	1	4

Died of chronic meningitis, 1; epilepsy, 1; chronic diarrhœa, 1; chronic bronchitis, 1.

"In a disease like insanity," says Dr. Worthington, "affecting an organ of such extensive sympathies as the brain, it is no more than reasonable to expect, that the healty tone of all the other organs would be more or less disordered, and that they would, in some degree, participate in its morbid condition. We accordingly find among the insane generally, a low standard of vital activity, diminution of nervous energy, inability to bear much fatigue, and a tendency to various forms of chronic diseases; the principal of which are, affections of the bowels, and pulmonary consumption; while they are less liable than persons in ordinary health, to all acute inflammatory diseases; unless it be that of the brain itself. It is therefore highly important, in order to counteract this tendency, that the insane should be placed under the most favourable hygienic influences; that they should breathe a pure, warm, and dry atmosphere; that they should have ample opportunities for physical exercise, either in the open air, or in inclement weather, in suitable sheltered apartments; that their food should be abundant and nutritious, and that their surroundings generally, as far as practicable, should be of a cheering and elevating character. By attention to the above requirements, it has been our endeavour to keep up the highest possible standard of physical health among our patients; and during the past, as in former years, we have been rewarded for our care in this respect, by the general healthy appearance of our inmates, and their comparative exemption from those chronic disorders, to which the insane are specially liable."

Of all the cases which have recovered at the Asylum in the course of the last ten years, the average duration of treatment is about twenty weeks.

The collection of books in the library "has been largely increased during the year, by the addition of choice works in the various departments of literature."

Gas, as the material for lighting the establishment, has been introduced in the course of the year.

5. From the medical record of the *Mount Hope Institution* we extract the subjoined numbers:—

	Men.	Women.	Total.
Patients on the 1st of January, 1859 . .	60	84	144
Admitted in course of the year . . .	69	66	135
Whole number	129	150	279
Discharged, including deaths . . .	59	43	102
Remaining January 1st, 1860 . . .	71[1]	106[1]	177
Of those discharged, there were cured . .	17	22	39
Died	9	7	16

Causes of death.—Exhaustive mania, 5; "extensive pulmonary disease," 3; acute mania, 2: "pyæmia from diffused abscess in neck," 1: chronic gastro-enteritis, 2; "infirmities of old age, and impaired general health, with exhausting mental agitation," 2; congestion of brain, 1.

"Fifteen suicidal cases," says Dr. Stokes, "are among the admissions of the past year. * * * In almost every case of this kind the bodily health is manifestly disordered; and when proper remedial means are applied, the propensity to suicide is weakened, or disappears. We generally find redness of the tongue, disinclination for food, irritable bowels, feebleness and emaciation, cold hands and feet. These symptoms, denoting a chronic grade of gastric derangement, require correction before the suicidal propensity will subside. In other cases, a loaded tongue, obstinate constipation, and appearance of hepatic disorder, will be observed. Both of these descriptions are chiefly applicable to patients between forty and fifty years of age. When submitted to proper remedial treatment they commonly improve, although very slowly, the general health having been insidiously impaired and undermined."

In regard to some of the causes of mental alienation, the doctor thus expresses his views:—

"The brain of every man is constituted to perform a certain amount of labour only, without receiving injury; and therefore all *beyond* this must entail evils which may accumulate, by repetition, until its ruin follows. But, it may be doubted if *excessive mental* (intellectual?) *application* is, by any means, a common cause of insanity. Experience shows that the mind is much more liable to be over-excited and injured through the agency of the passions, affections, and other operations of the *will*, than it ever is through any of the faculties of the *understanding*. In almost all instances in which overstrained intellectual exertion is given as a cause, it will be found that some of the passions have been in a state of great and continued activity. The individual has, for example, been long actuated by some such feelings as anxiety, ambition, or a dread of disgrace. Hence, we may conclude that the physical excitement which commonly characterizes the incipient stage of mental derangement, is far more readily engendered by the emotions and passions than it is by any of the intellectual operations of the mind.

"On the same principle it will be found that *religious excitement* is a less frequent source of mental aberration than is generally supposed."

In regard to the last sentence, we may remark that we do not perceive in what manner the asserted fact is derived from the *principle* of the foregoing paragraph. That *principle*, if we understand it, is, that man's moral or emotional nature is more frequently the cause of insanity than is his intellectual nature. If, then, the religious sentiment is, as we have always supposed it to be, a part of that moral or emotional nature, it necessarily follows that its tendency to produce insanity must be greater than that of one of the intellectual faculties. But, let us proceed with our extract.

[1] So given in the report; but, as results from the foregoing figures, they should be 70 and 107.

"Where one man falls a victim to religious excitement, ten others are the prey of exhausting anxieties contingent upon commercial affairs, the fatigues and exhaustions consequent upon over-work and care, or following vicious indulgences in forbidden pleasures." That is hardly a fair comparison, or, rather, contrast: religious excitement is arrayed singly against numerous other causes, and, reasonably interpreted, the sentence reads, "Where *one* falls a victim to religious excitement, *ten* others are a prey to ten, or fifteen, or twenty other causes."

It is well known by all who are familiar with the reports from our institutions for the insane, that the exercise (abnormal if you please) of the religious sentiment is placed, as a general rule, among the leading causes of mental derangement. We now take up the report which, aside from the one under review, is nearest at hand. It is that of the Pennsylvania Hospital for the Insane. In its table of supposed causes, 1973 cases are reported as ascertained. Of these 1973, the number attributed to "religious excitement" is 127, which is equal to 1 in 15½. In other words, according to these data, while religious excitement produces 1 case of insanity, *all other causes, both physical and mental*, produce but 15½ cases. We refer to the report next at hand. It is that of the Southern Ohio Asylum. Its table of "alleged causes" includes those cases alone which were admitted in the course of the year. Of the 65 cases in which causes were "alleged," 8 are attributed to "religious excitement." This is equal to 1 in 8⅛. We are aware that Dr. Stokes's report is an exception to the general rule upon this point. Of 248 cases under his care, in which the "supposed causes" are mentioned, only 4 are assigned to "religious excitement." This is but 1 in 62.

We fully agree with the doctor in the proposition "Religious excitement is a less frequent source of mental aberration than is generally supposed." We believe that many cases are attributed to this source which really originate in other and far different causes. Yet, that it is a very potent agent in the production of the disorder among the people, as a whole, of the United States, we perceive no room for a man instructed in the subject to doubt. For ourselves, we have so often observed in the increased number of patients admitted into hospitals, the effects of "protracted meetings," "revivals," and other forms of inciting the religious sentiment to action, that we cannot believe otherwise.

Gas, for lighting the building, has been introduced since the preceding report. A section, 117 feet in length, of the new hospital, a few miles from the city, was, at the time the report was written, "roofed in," and it was expected that it would be ready for the admission of patients in the course of the summer of 1860.

6. Our friends at the *Central Ohio Lunatic Asylum* are again in trouble. The State government appears somewhat disposed to cast its eyes backwards from the plough to which it once so bravely put its hand. The legislative appropriation for the support of the asylum in 1858–9 was less by $8000 than the estimates, and the consequence was, the evacuation of two wards, by the discharge of about fifty patients.

	Men.	Women.	Total.
Patients in the asylum Nov. 1, 1858	136	119	255
Admitted in course of the year	80	100	180
Whole number	216	219	435
Discharged, including deaths	105	116	221
Remaining Nov. 1, 1859	111	103	214
Of those discharged, there were cured	44	61	105
Died	9	4	13

The causes of fatality are not mentioned.

Dr. Hills writes at some length upon the treatment of insanity. We extract the most important portions:—

"Under mistaken views of the nature of the excitement existing with the insane, it is still too often the case that when any medical aid is called and adopted it is the reverse of what it should be. The indications are inferred to demand antiphlogistics and depletives, and they are applied with a vigilance and perse-

verance worthy of a better cause. * * * * If all the localities in our district where patients are bled and otherwise depleted, *secundem artem*, before admission, were to become vacant, a host of young doctors might speedily find 'locations.'

"In nearly if not quite all cases of insanity, when the true causes are well scanned, they will be found to be depressing agents, that they have reduced the appetite, or the powers of assimilating food, one or both; that they have reduced the sleep, exhausted the normal muscular powers, and increased the excitabilities of the nervous system. In this condition, whatever may be the wild excitement of the patient, the unnatural muscular energy, the rapidity of the pulse, the last thing to be thought of is the lancet, or a drastic cathartic, or an emetic, or low diet, or any other depressing agent. In their stead are wanted a decided anodyne, stimulants, tonics, more and better food. For the former a full dose of opium in some form unless contra-indicated by some special condition or idiosyncrasy; it may be morphine, not the sixteenth of a grain either, but a half grain or a whole grain, and repeated according to effect or want of effect. The stimulant may be milk punch, ale, porter, or wine, if you are sure you have it. The tonic may be almost any of the vegetable bitters or ferruginous preparations, or better if both be combined. The food to be the 'heartiest,' as generally styled, that the patient can be induced to eat."

In matters of theory or opinion, we often quote without comment from the reports, even when our views differ from those of the author of the matter quoted. In the present instance, however, where an important point of medical treatment is concerned, we should hardly feel justified in an omission to record our dissent from some parts of the course here laid down as the proper one to be pursued in insanity accompanied by high excitement. Of the *general idea* of that course we approve; but, in our experience, there has been a large majority of recent cases in which we thought it best to prepare the way for opium and tonics by mild cathartics, and, in many cases, by further gentle action upon the secretions of the alimentary canal. Without such preparation there are very many cases in which opium, in any of its forms, will produce the dry, parched tongue, and other unpleasant effects which sometimes follow its use. Neither would we counsel, in a large proportion of recent cases, that hearty meals of meat and vegetables should be set before the patient until the bowels have been relieved from that abnormal condition in which, so far as our observation is concerned, they are generally found to be. Right-hand errors, no less than left-hand errors, should be avoided; and he who should teach that beef and brandy are the only curative agents for insanity would fall into an error second only in the extent of its injurious consequences to that of those who have looked upon the lancet as the only hope in that disease.

An interesting case of abstinence from food is related in the report. A patient, believing himself to be the Son of God, determined, in obedience to a supposed command, to fast twenty-one days. "He fasted for exactly *twenty days* (the period to which we had shortened it by a little finesse in counting for him) without taking a mouthful of any kind of food or drink during the entire period." This was well proven by all the attending circumstances, and the case is presented as rather a rare one. The effect upon him was but slight for the first ten or twelve days. He then became gradually more excitable, walking the halls almost incessantly, became more thin and gaunt, was more sleepless, and finally became so excited and dangerous—threatening lives, and devising means therefor—that he was removed to another ward, and commanded by another power never to miss another meal. This case is clearly illustrative of the numerous ones in which excitement is produced by want of nutrition, and in which, with those who err in judgment, depletion is the mistaken remedy.

As one exponent of the state of the moral treatment in this asylum, we quote from the report the assertion that "for six months past, not a single instance has occurred in which has been used a camisole, muff, strap, or any other device whatever for personal restraint."

7. Aside from statistical tables, the report of the *Southern Ohio Lunatic Asylum*, for the year ending November 1st, 1859, is unusually brief.

	Men.	Women.	Total.
Patients at the beginning of the year . .	81	79	160
Admitted in course of the year . . .	51	39	90
Whole number	132	118	250
Discharged, including deaths	49	45	94
Remaining at the end of the year . . .	83	73	156
Of those discharged, there were cured . .	26	32	58
Not insane	0	1	1
Died	12	2	14

Causes of death.—Paralysis, 5; epilepsy, 3; mania, apoplexy, ascites, disease of heart, suicide, and necrosis, 1 each.

"During the past year," says Dr. McIlhenny, "we have enjoyed our usual amount of health, with the exception of a few cases of smallpox. Early in June a case occurred in one of the male wards. It manifested itself in a patient about ten days after his admission, he evidently having contracted the disease previously to his being brought into the asylum. By attention to cleanliness, ventilation, and vaccination, its spread was soon arrested; but four persons in the whole house had the disease, and but two of them were well-marked cases."

Among the improvements of the past year are a two story building for a "general work shop," and an artificial "lake," covering three-quarters of an acre, with an ice house upon its shore. P. E.

ART. XX.—*Electro-Physiology and Electro-Therapeutics: showing the best Methods for the Medical Uses of Electricity.* By ALFRED C. GARRATT, M. D., Fellow of the Massachusetts Medical Society. 8vo. pp. 708. Boston: Ticknor & Fields, 1860.

Traité des Applications de l'Electricité à la Thérapeutique Médicale et Chirurgicale. Par A. BECQUEREL, Médecin de l'Hôpital de la Pitié, Professeur Agrégé à la Faculté de Médecine de Paris, etc. Deuxième édition revue et considerablement augmentée; avec 15 figures intercalées dans le Texte. 8vo. pp. 550. Paris: Germer Baillière, 1860.

De la Galvanisation par Influence appliquée au Traitement des Deviations de la Colonne Vertébrale, des Maladies de la Poitrine, des Abaissements de l'Utérus, etc. Par le Docteur J. SEILER. 8vo. pp. 157. Paris: J. B. Baillière et Fils, 1860.

THE employment of electricity in the treatment of disease is daily becoming more and more general. Hitherto the medical use of this powerful agent has been, in great measure, confined to empirics, who, in utter ignorance of its fundamental phenomena, have applied it to every form of disease without discrimination, and oftentimes, therefore, with the most injurious results. Thanks, however, to the patient and valuable labours of Duchenne, Middeldorpff, Matteucci, Weber, Schönbein, Du Bois Reymond, Becquerel, Nobili, Golding Bird, Remak, Althaus, Radcliffe, and others, such a flood of light has been thrown upon the manner in which electricity influences the organism, and the modes of using this imponderable, therapeutically, have been so greatly improved and simplified that a growing disposition is manifested by regularly educated physicians to investigate the whole subject scientifically, and to push to their fullest extent the electrical remedies, which certainly promise to be of much importance.

The simultaneous appearance of the three volumes whose title-pages are quoted above, and of others which could readily be mentioned, shows that electricity is regarded as an established remedy in the long list of therapeutical agents.

In some respects these works differ from each other. Two of them are systematic treatises; the other is a special monograph.

The work of Dr. Garratt, professedly designed for medical students, claims to

be a "plain, practical, and systematic treatise on electro therapeutics, electro-physiology, electro-pathology, and electro-diagnosis." Judging from the preface, however, the book appears to have been written as much for the public as for the profession; as much with the object of enlarging the sphere of the author's special practice, as for the purpose of instructing physicians and students in the science of electrical therapeutics. In the prefatory remarks, the reader is informed that medical men are not as familiar as they should be with the relationship of electricity and vitality, that the author, however, has made the electrical treatment of "*Neuralgies*" and "*Palsies*" a specialty, and that he is profoundly convinced of the efficacy of electric currents as a remedy capable of producing often a radical cure, especially in nervous affections. He informs us that the publication of his work has been flatteringly requested by many distinguished members of the most venerable medical association in America; that he has had the honour and the advantages of the personal instructions, conversations, correspondence, and encouragements of some of the most renowned philosophers and truly experienced electricians in Europe, to which has also succeeded a ceaseless tide of bedside experiences exclusively in this special practice. He warns all electropaths, electro-physiologists, and travelling galvanizers, not to assume his name and address in any of the States, as they have done heretofore. Finally, to use his own language, "he has aimed to present the whole subject of medical electricity in so clear and simple a manner as to be readily understood by any one of ordinary intelligence;" not only by members of the profession, and the younger candidates for its labours and honours, but also by whoever else may read his work.

Turning to the body of the book we find much that is practically valuable mingled with not a little that might have been discarded from its pages with advantage. Thus, in the first chapter, some fifty pages are occupied, needlessly we think, with an exposition of the well-known principles and phenomena of natural electricity. We say needlessly, inasmuch as the primary truths of electricity are sufficiently well described and explained in most of the elementary works on natural philosophy.

In the arrangement and division of his work, Dr. Garratt follows very closely the order adopted in Becquerel's admirable treatise, the first edition of which appeared some three years ago. In the preface to the edition now before us, Becquerel informs us that during the past three years he has examined the whole subject anew, and made many novel applications of electricity to therapeutics. He has tested also the validity of many of the cures announced from time to time in the various medical journals, and has thus acquired the right to speak authoritatively upon this subject. His book comes to us, therefore, not only as an experimental *resumé*, but also as a critical report, in which the author studies with care the construction and theory of various kinds of electric apparatus; endeavours to establish with precision the general principles which should guide us in the medical employment of electricity, and essays also to determine the exact value of this agent in the different groups of diseases. Lastly, and this we regard as an important feature in his work, he points out with much judgment the cases in which this imponderable is contra-indicated.

Dr. Garratt's work fairly begins with the second chapter, in which is related the early history of the medical uses of electricity. The history of a science is, in truth, of much practical value, inasmuch as it reveals the mode of development of that science, shows the causes of its various successes and failures, and in this manner lends a strong light to future investigations in the same field. The first forty pages of Becquerel's truly scientific treatise are occupied with this subject; but while Dr. Garratt gives us an interesting but somewhat confused and rambling account of the history of medical electricity, Becquerel tells the same story in a manner at once thorough and concise. The various steps in this history he has tersely recorded in their chronological order.

Part 1st of Becquerel's treatise, and Chapter III. of Dr. Garratt's volume, are alike devoted to a description of the electrical instruments and apparatus employed for medical purposes. Chapters IV. and V. of Garratt, and Part 2 of Becquerel, treat of electro-physiology, or the action of currents upon different parts of the organism, and of the various ways in which electricity is medically

applied. The remaining portion of each work, that is to say, Part 3 of Becquerel, and Chapters VI., VII., VIII., IX., and X., of Garratt, discusses the therapeutical applications of electricity.

The brochure of Dr. Seiler owes its existence to a series of experiments undertaken by him in the autumn of 1853 with the view of discovering some ready means of producing local insensibility. In Chapter I. he figures and describes a somewhat complicated induction apparatus of his own contrivance. The physiological effects of this apparatus are explained in Chapter II., and the manner of employing it medically in the third and last chapter, which also contains a detailed account of the successful electrical treatment of a series of cases of spinal curvature, contracted chest of phthisis, laryngitis, asthma, prolapsus, and procidentia uteri, neuralgia, and subluxation of the knee.

Within the brief limits of a bibliographical notice, it is manifestly impossible to enter, at any length, into an exposition of the present state and future promises of electro-therapeutic science. For such information we can only refer our readers, therefore, to the works under consideration as the most recent, and among the most useful upon this subject. The treatise of M. Becquerel recommends itself by its systematic arrangement, the fulness of its details, the scientific skill and care with which the observations recorded therein have been made, and the plain and succinct style in which it is written. From it the reader learns all the diseases in which electricity, in one form or another, has proved useful; he also learns how to apply it with precision; in what cases its use would be injudicious; and what are the dangers or inconveniences of its employment. Dr. Garratt's work is also valuable for the copiousness and importance of its details. These details, however, are badly collected, and the style in which they are clothed is diffuse and often inelegant. Its value as a scientific text-book has been impaired by the evident attempt at giving it a popular character. Nevertheless, its advantages more than counterbalance its faults of commission, and we can recommend it, therefore, to the profession as, in many respects, a useful work. The monograph of M. Seiler is short and well written, and though of limited scope, eminently practical. We regard it, therefore, as an excellent addition to the literature of this interesting branch of therapeutics.

J. A. M.

ART. XXI.—*De la Circulation du Sang dans les Membres et dans la Tête chez l'Homme.* Par J. P. SUCQUET, Docteur en Médecine de la Faculté de Paris, Lauréat de l'Académie des Sciences, Chevalier de la Légion d'Honneur. Paris: J. B. Baillière et Fils, 1860.

MORE than two centuries and a quarter have elapsed since Harvey proclaimed the important fact that the blood flows from the heart into the arteries, from the arteries into the veins, and from these latter back into the heart again. But Harvey died without the satisfaction of knowing the mode of communication between the arteries and veins. It was reserved for Malpighi, Leuwenhoek, Haller, Spallanzani, Reichel, Dœllinger, and many others, in succession, to demonstrate upon living animals and by means of the microscope, the intermediate or capillary system of vessels by which the blood is carried from arterial into venous channels. The manner in which arteries communicate with veins has rarely been studied, however, by means of solidifiable injections. Dœllinger instances as the only example of this kind, the admirable researches of Sœmmering upon the vascular rete of the choroid coat of the eye. By practising this method of investigation, M. Sucquet claims to have discovered in the upper and lower extremities, and in the head, a direct passage between certain arteries and veins, different from and independent of the capillary system of these parts.

It is well known that water injected into the axillary artery returns promptly by the great veins of the arm. This ready return of arterial injections by the veins, known ever since the days of Ent, the friend and contemporary of Harvey, has particularly attracted the attention of our author in connection with the

subject of a derivative circulation, and has led him to institute a series of experiments with some highly interesting results. These results are embodied in the *brochure* whose title is placed at the head of this article.

M. Sucquet found that 100 or 120 grammes of liquid thrown into the axillary artery appeared immediately in the corresponding veins. That the fluid first issuing from the veins under these circumstances was really that injected into the artery, and not the reddish serum remaining in the vessels after death, was shown by the following simple though not wholly conclusive experiment. Water holding in solution ferrocyanide of potassium was injected into the artery, and the first liquid which escaped from the veins was tested with a solution of sulphate of iron. An abundant blue precipitate was obtained. This experiment is not altogether satisfactory. The ferrocyanide of potassium might have diffused itself at a faster rate than the water, and thus mingled with the serous fluids in the vessel before the water did. Be this as it may, however, the sudden appearance of the injected fluid in the veins can only be accounted for, according to our author, by supposing that the whole vascular system of the arm—arteries, capillaries, and veins—was filled at one and the same time by the liquid, which could hardly be the case, the quantity injected being so small, or that there was some immediate communication between the arteries and veins. Apparently in confirmation of this latter idea, M. Sucquet found that the veins of the fingers and hands were the first to swell with the injected liquid; then the subcutaneous trunks of the forearm became tumefied, and, finally, those of the arm. Desirous of determining this matter satisfactorily our author injected into the axillary artery a black liquid capable of becoming solid in the vessels, and therefore readily detected by subsequent dissection. The general color of the arm in certain parts was changed at once. The hand, fingers, and elbow became deep brown. The arm and forearm, on the contrary, presented their natural aspect. The colour of the hand, fingers, and elbow showed that the black injection had penetrated these parts more abundantly than any others. From this circumstance our author concludes that the vessels are more abundant here, and the circulation, during life, more active than in the other parts of the arm. He found the cutaneous arteries well injected; but the capillary network was nowhere penetrated by the injected liquid. This liquid was arrested in the last divisions of the arteries; beyond that the bloodvessels were empty. Where the arteries of the muscles had resisted rupture their fine arborizations could be readily traced, running in different directions between the muscular fibres; the veins, on the other hand, were collapsed and empty. In the adipose and cellular tissues, and in the periosteum, bones, and nerves, the arteries and veins exhibited the same contrast. Everywhere the arteries were filled with injection; everywhere the veins were empty. In the relaxed cellular tissue, which forms a sort of subcutaneous bag at the elbow, vessels appear in abundance, the arterial ramifications penetrating in every direction the areolæ of the under surface of the derm, whence issue the injected venous radicles. In fact, if we trace these radicles, says M. Sucquet, towards their trunks we soon lose sight of the injection and find the vein collapsed. But it is particularly upon the cutaneous surface of the olecranon, he continues, that the communication of arteries and veins becomes apparent. Here, and in the vicinity, the arterioles derived especially from the recurrent arteries of the forearm, or from the arterial branch which accompanies the cubital nerve, ramify in profusion. In the course of each arterial arborization two venous arborizations may be observed, one on each side of the artery. In their course, as at their termination, these three vessels communicate by very short branches going from the artery to the veins.

M. Sucquet found that the skin of the forearm in the rest of its extent preserved its normal colour after the injection. The arteries were completely filled with the injected liquid, but the passage from the arteries to the veins had not been overcome. The trunks of the basilic and cephalic veins only were more or less full of the injection which had come from the veins of the hand. The branches of these two veins which originate in the skin of the forearm, were found empty even to their ultimate roots. The deep-seated radial and cubital veins near the wrist also contained some of the injection which had been received from the veins of the hand, and through anastomosing branches of the injected superficial

trunks. The muscular and other deep-seated veins were empty and collapsed. They, therefore, had not supplied any of the injected liquid to the radial and cubital veins. While in the hands and fingers all the venous trunks were more or less fully penetrated, the injection in the depths of the arm had not gone beyond the arteries. Around the nails, and in the highly vascular tissue under the nails, the injection was abundant. At the ends of the fingers the venous radicles were very full. Those constituting the vascular network surrounding the root of the nails were quite voluminous. The skin on the internal side of the hand, the surfaces of the fibrous envelops of the articulations, the aponeurotic expansions of the extensor tendons of the fingers exhibited arterial and venous ramifications communicating directly together. In the muscles, tendons, and bones of the hand, on the contrary, only the arteries were injected.

The above observations were frequently repeated by our author upon the bodies of the young, of adults, and of aged persons, and always with the same results even when the mode of experimenting had been varied.

In this connection it is interesting to recall an observation made by Bichat relative to the vascular system of the upper extremities. "From the arteries of the palm of the hand," says the illustrious deceased, "originate a crowd of branches very large in size and placed closely together. There appears, indeed, to be a want of proportion between the vessels and the organs. The largest branches are precisely the collateral ones, placed upon the fingers where no muscles are found. We certainly cannot regard these latter vessels as uniformly destined for the nutrition of the part upon which they are found."

It will thus be seen that the same arteries in which M. Sucquet endeavours to demonstrate the existence of a free and direct communication with the veins, are spoken of by M. Bichat as more numerous than those of any other part of the arm, and as carrying to the hands a quantity of blood which can scarcely be employed in the process of nutrition.

The veins of the fingers and hands unite to form two great trunks, known as the cephalic and basilic veins. All anatomists agree that these two veins differ in several respects from others in the arm. They are superficial, subcutaneous, unaccompanied with parallel arteries, and form, ultimately, a distinct venous system.

According to M. Sucquet, if we examine this system closely we shall find that particular veins correspond accurately with particular arteries of the fingers and hands. Special arteries are succeeded by special veins, and these latter constitute the channels through which flows the blood returning from the fingers and the hands. In the arm the blood does not pass everywhere in the same manner from the arteries into the veins. In the hands and the fingers the blood passes directly and with great facility from one set of vessels to the other. In other vessels of the arm this passage is indirect, and is effected more slowly and with difficulty. At the extremity of the arm there is a direct circulation in no way connected with nutrition; in the arm, as a whole, there is an indirect and nutritive circulation.

If these observations of our author be correct, it will be seen that the study of the circulation of the blood is far from being as simple and uniform as is generally supposed. All that is at present known concerning the circulation of the blood in the arm has been derived from the study of the cephalic and basilic veins chiefly. Placed under the eyes and hands of observers these veins have been examined more carefully than any others. We now know that they receive the currents of blood which come by the special and direct route of the arteries of the hands and fingers. They have apparently nothing to do with that other stream of blood which flows amidst the deep-seated parts of the arm, and which binds together, as it were, the life and motions of this organ, and of which we have but an imperfect knowledge. In proof of his statement that the circulation, as it goes on in the special venous system of the hands and fingers, is different from the general or nutritive circulation of the arm, our author refers to the intermittent character of the circulation in the veins of the hands. Sometimes these veins receive not a drop of blood, sometimes they receive only a small and slow stream, at other times they are filled with a voluminous and rapid current. They exhibit every gradation, therefore, between emptiness and

turgescence. This is not the case with the general circulation, the arrest of which would be incompatible with nutrition. One of the essential conditions of healthy nutrition is that the supply of blood to the part should be continuous, incessant.

During the cold of winter, according to our author, the basilic and cephalic veins remain whole hours, even entire days, without giving passage to the blood, and yet the arm retains its sensibility and motility. Under these circumstances the nutritive circulation continues everywhere in the hand as well as in the arm; that of the cephalic and basilic veins alone is interrupted. These two circulations are not, therefore, bound together. The first remains constant; the second may falter or even disappear altogether for a greater or less length of time. During the heat of summer, after a generous repast, the veins of the hands swell up; but their increased volume is not accompanied with a similar venous turgescence of the whole arm.

Whatever may be the point of view in which we are placed, says M. Sucquet, it always results from our examination that the circulation of the blood in the veins of the arm is different from that in the veins of the hand. When a fit of anger precipitates the movements of the heart and causes a superabundant wave of blood to be driven into the arteries of the arm, we must not infer that the blood is driven with equal force in every direction. The laws of hydraulics are against this supposition. The blood is directed towards those points, chiefly, where its flow finds the least resistance. As the passage from the arteries into the cephalic and basilic veins is the freest, it is towards this point that the fulness of the arterial system is directed. It is by this means that the habitual equality and constancy of the rest of the circulation in the arm is maintained. It is upon this hydraulic law that the doctrine of derivative or revulsive bleeding is based. "When the blood flows readily by the veins," says Haller, "its march becomes at the same time more rapid in the corresponding arteries." The cephalic and basilic veins receive, therefore, the transitory or permanent fulness of the arteries of the arm; their circulation is a derivative or diverticular circulation. When sudden fright, cold, hunger, or any of the depressing causes lessen the action of the heart, these veins collapse or empty themselves, because the arterial current subsiding with the diminished power of the heart, exhausts itself by its successive distribution to the different parts of the arm.

From the foregoing statements, condensed from the pamphlet before us, it would seem that there are two distinct circulations in the upper extremity. The one is general, permanent, regular, and nutritive; the other localized in certain vessels of the elbow, and above all, in the arteries and veins of the hands, is inconstant, irregular, and has for its use the reception of the superabundant blood of the arterial system of the arm, counteracting in this manner the frequent and marked irregularities of the latter, and preserving, finally, the constancy and equality of the interstitial circulation.

Liquids injected into the crural artery escape readily by the crural and saphenous veins; more quickly and copiously, however, by the former than by the latter. After the injection the skin of the thigh and leg preserves its natural colour, that of the knee and foot, on the contrary, becomes brownish, as in the elbow and the hand. The vessels upon the anterior part of the knee are arranged in a remarkable manner. The arteries are here more numerous, less branched, and more filiform than those of the leg and thigh. Instead of pursuing a solitary course, they are accompanied with numerous venules filiform like themselves, and filled with injection. The arteries and veins communicate with each other, not only in their course but at their termination.

When the arteries of the thigh and leg have been injected the veins of these parts still remain empty. In the foot, on the contrary, the veins are more or less full. The two saphenous veins at their origin receive the injection from the arteries around the nails and in the skin of the external and internal margin of the foot. At this point there are numerous communications between the arteries and veins. Upon getting out of bed in the morning, a score of these distended veins exhibit themselves here, all running towards the curve which the saphena forms in this region. Upon dissecting the sole of the foot we find frequent communications between the arteries and veins.

Our limited space will not permit us to reproduce in detail all the particulars concerning the arrangement of the vascular system of the lower limbs. It appears, however, from our author's researches, that the derivation of blood in both the upper and lower extremities has been conceived upon a uniform plan, and realized in analogous parts. The vessels of the elbow and the knee, the fingers and the toes, the skin of the thenar eminence, and that of the internal side of the foot are the first to afford a direct passage to the blood or to any fluid traversing the great arteries of these parts.

Thus, then, it appears that in the lower extremity, as in the upper, there are two circulations. One of these is constant, equable and nutritive; the other is supplementary, inconstant, unequal, and derivative. It is limited to certain vessels of the knee, and to certain arteries of the foot, which anastomose with the saphena, and with the deep-seated veins at the end of the limb.

M. Sucquet next examines the circulation in the head. He finds that injections thrown into the primitive carotid artery return by all the jugular veins without having visibly distended the veins of the head. Having tied the vertebrals and one of the primitive carotids, and injected the other carotid with a black plastic liquid, he found that certain parts of the head became discoloured. The lips, the nose, the forehead, the tip of the ears and the cheeks grew brown. The inferior jaw, the temples, and the skin on the posterior part of the head, preserved their natural aspect. The head being dissected, under these circumstances, the facial vein was found empty at its entrance into the internal jugular, in its course over the inferior maxillary, and on a level with the commissure of the lips. The branches which it receives in its course, and the inferior labial vein, were also empty. The superior labial, on the other hand, and that part of the facial on the same level, and its branches beyond this point were all injected. Around the nostrils the injected vessels formed a thick circle; they were also very numerous on the under surface of the skin of the nose, and the mucous membrane which covers the fibro-cartilages, the septum nasi and the inferior turbinated bones. The venules coming from this network empty into the facial vein, or, extending over the bridge of the nose, they reach the angular vein, or even the intra-orbital branches of the ophthalmic.

Carefully and minutely our author proceeds to trace out and make known all the vessels which have been penetrated by the injection. From this examination he concludes that in the head, as in the superior and inferior extremities, there is, besides the nutritive circulation, another which is carried on in the facial, ophthalmic, and auricular arteries, and which serves to receive the superabundant blood that may have been driven into the arteries, and to turn it into the venous system chiefly by the facial vein. The face is the seat of the derivative circulation of the head, as the hands and the feet are the seats of the circulation in the upper and lower extremities.

The concluding pages of the highly interesting pamphlet under consideration are devoted to some general remarks upon the nature, importance, and practical uses of the derivative circulation. These remarks are full of interest, and in many respects highly suggestive. J. A. M.

ART. XXII.—*Transactions of the Obstetrical Society of London. Vol. I. For the year* 1859. *Together with a Report of the Inaugural Meeting of the Society, a List of Officers, Fellows, etc.* London: 1860. 8vo. pp. 347.

TOWARDS the close of the year 1858, at a meeting especially convened for the purpose, the leading teachers and practitioners of obstetrics, of London, resolved to form themselves into a society for the advancement of the knowledge of their especial branch, and of the pathology and therapeutics of the diseases of women and children; with an invitation to their obstetrical brethren throughout the kingdom to participate with them in the furtherance of their object.

The society thus formed went into active operation in January, 1859, and now

includes among its ordinary members some of the most distinguished practitioners of midwifery in the British metropolis and its vicinity. At its meetings, which are held on the first Wednesday of every month, except August and September, cases are related, oral communications made, pathological specimens presented, and papers read and discussed by the members. Such of the cases and papers thus communicated as are considered of sufficient value by a standing committee of twelve Fellows are inserted in the printed transactions of the society.

The first volume of these "Obstetrical Transactions," which now lies before us, speaks well for the industry and for the talents of the members. Its contents are in the highest degree interesting, whether as facts illustrative of important points in the theory and practice of midwifery—investigations tending to shed new light upon the proper management of tedious, difficult, complicated, and obstructed labours, or observations illustrative of the pathology and therapeutics of the pregnant and parturient female and of the new-born infant.

The leading object of the Obstetrical Society of London is to collect and concentrate the accumulated experience of the obstetricians of the metropolis and provinces of Great Britain, so as to render this inestimable fund of knowledge available for the instruction of the profession at large—an object of the highest importance, and one which is not difficult of accomplishment by the hearty co-operation of the parties immediately interested.

In the address delivered by the President of the Society, Dr. Edward Rigby, at the initial meeting, January, 1859, the importance, within the domain of obstetrics, of carefully-observed and accurately-recorded facts over mere speculative disquisitions is strongly enforced.

It is not our intention to notice all the contents of the volume before us. Besides several somewhat elaborate papers in reference to important points connected with the practice of midwifery and the pathology of the pregnant and parturient states, there are two or more statistical records of midwifery from private practice, and some twenty-five or thirty cases in the departments of obstetrics, and of the diseases of women and children—all of which are replete with instruction—many of very considerable interest. To present such an account of these as would be satisfactory, would extend our notice to an unreasonable length. We can permit ourselves only to attempt a brief notice of some of the more prominent of its contents.

Among these is to be ranked the excellent inquiry, by Dr. W. Tyler Smith, into the means for *abolishing craniotomy from obstetrical practice*, in all cases where the fœtus is living and viable. Of this an analysis will be found in our No. for April, 1859, p. 567 *et seq.*

A paper by Philip H. Harper, inserted in a subsequent portion of the volume, has a close relationship with the one just noticed. It is on the more frequent and prompt use of the forceps in labour as a means of lessening both maternal and fœtal mortality. The paper is one of very great interest. The conclusions of the author are based upon an obstetrical experience, extending over a period of twenty-one years, during which a very large number of cases of labour were witnessed by him. The classes among which these cases occurred were, during a part of the time, those engaged in agricultural and kindred pursuits, and during the remainder of the time the inhabitants of a town and mining district. A large proportion of the cases, therefore, happened in females engaged in the usual employments, and exposed to the influences peculiar to the wives of the labouring classes in the agricultural and mining districts of Great Britain.

The paper is divided into eleven sections, which treat:—

1. The ill effects produced in the mother, either locally or generally, by the use of the forceps. 2. The ill effects produced by its use upon the child. 3. The causes of death in mother and child after the use of the instrument. 4. Proof that not only is the danger to the mother and child increased by the long duration of the second stage of labour, but that the convalescence of the former is tedious and unsatisfactory in the same ratio. 5. The relative danger of death after tedious labour, forceps delivery, and craniotomy. 6. The power which may be exerted by the forceps when applied with a view to terminate labour. 7. The

states in which the forceps ought to be used. 8. The period of labour at which the use of the instrument is indicated, and the symptoms showing the propriety or necessity for their application. 9. A short abstract of the forceps cases that have come under the author's own care. 10. The cases in which the forceps may be more frequently used, not only with safety, but with great positive advantage. 11. Proofs that the more frequently the forceps are applied, in proper cases, the more maternal and fœtal lives will be saved, and the greater will be the freedom from the after consequences of protracted labour.

The paper of Dr. Harper is a highly instructive one. The leading doctrines inculcated by the author in respect to the use of the forceps in cases of difficult, complicated, or impeded labour, have been long recognized and acted upon by the obstetricians of the United States, in common with those of the continent of Europe; while their importance has been, in a great measure, overlooked by the obstetrical teachers and practitioners of Great Britain.

Dr. H. denies that there is any especial risk to the mother which necessarily attaches to the use of the forceps, and that the various injuries and other ill effects, which are usually attributed to the instrument, are not the result of its use, but of its abuse. In most of the cases where the death of the mother takes place in forceps cases, he believes it is the result of the length of time the labour has lasted before the forceps were resorted to. That so long as it is made the last resort in tedious labour, so long will the maternal mortality after their use appear to be very high. He has shown, from the only statistics which give the necessary data, that where the forceps are freely used, while 1 mother in 22, and 1 child in 5 died in unassisted tedious labour, but 1 mother in 56, and 1 child in 8.4 died where the forceps were employed; and 1 mother in 10 died after craniotomy; showing that the risk to the mother is less after the use of the forceps than after craniotomy, or even unassisted tedious labour.

Dr. Smith has also adduced facts to prove that the forceps may be safely employed to compress the head of the child when resorted to early and properly applied. In a large number of cases of tedious labours, from abnormal or diseased action of the uterus itself, he has shown that the forceps are an invaluable aid, and should be used most freely. That the period for their use is early in labour, as soon, indeed, as the os permits, and long before the maternal system has begun to suffer, either locally or generally.

A highly interesting paper on the transfusion of blood, its history and application in cases of profuse uterine hemorrhage unattended with organic disease, is communicated by Dr. Charles Waller. In the course of the paper, a case is related of extreme exhaustion from hemorrhage subsequent to delivery in which transfusion of blood was attended with, apparently, the very best results.

Dr. Waller describes a syringe which would seem to be well adapted for the transfusing of blood. By a funnel which communicates with the barrel of the instrument, the blood is received immediately into the latter from the orifice whence it is derived.

Dr. Robert Barnes relates fourteen cases in illustration of the physiology and treatment of placenta prævia. In our number for July of last year will be found an abstract of the leading physiological and therapeutical propositions, which the author has deduced from the facts developed in this paper.

A series of cases of polypus of the uterus are detailed by Dr. Francis Elkington, with interesting clinical observations. These cases are well adapted to illustrate many points connected with the phenomena, diagnosis, progress, and treatment of the usual forms of polypous growths.

A very sensible paper on the hydatidiform or vesicular mole; its nature and mode of origin, is from the pen of Dr. G. Hewitt.

The author denies that the diseased structures in question are true hydatids or proper cyst formations, but adopts, with some modification, the opinion advanced by Gierse, of Berlin, that they are the result of hypertrophy of the natural structures found in the chorion villi, with secondary œdema.

Dr. Hewitt shows that the healthy chorion villi, when examined at an early period, are found to consist of processes branching out and dividing like the branches of a tree. These processes, as Velpeau long since pointed out, are furnished with clavate terminal enlargements. They consist of a homogeneous,

transparent membrane, on the surface of which are seen nucleated cells in close apposition. When cut into, the processes present a network of cellular tissue. It is these villi which become transformed into hydatidiform masses, by a change altogether irrespective of the nucleated epithelium cells which cover the surface. In the altered villi the cells over the enlarged portions are seen to be separated from one another, as the result of the distension of the part beneath, to which distension of the interior of the villi by a serous fluid the enlargement is due. The superficial cells would appear to have undergone no other change than simply a very slight distension of their interior by serous fluid. In the hydatidiform mole, therefore, it is evident that we have not a new formation, but simply an alteration and degeneration of previously existing structures.

The changes in the chorion villi which result in the production of the hydatidiform mole are, according to Dr. H., secondary to, and a consequence, not a cause, of the death of the embryo. The vesicular transformation being nothing more than a degeneration of structures arrested in their development, which arrest of development takes place simultaneously with the death of the embryo.

"If we examine," he remarks, "the state of the villi during the second month of fœtal life, we find that at that time their vital activity is very great, they are engaged in supplying nourishment and means of growth to the embryo. During the same period, also, a portion of these villi become transformed and developed into the fœtal placenta, while the remainder disappear. The vitality of the fœtus seems to be the circumstance which determines the further development of the placental villi; and the development of the fœtus and of the placental chorion villi proceeds *pari passu*. There are no facts showing that the embryo being dead, the chorion villi can become subsequently developed into bloodvessels, as is the case when the life of the embryo persists. But the death of the embryo does not necessarily determine the cessation of *vitality* in the chorion villi. In order that this may be the case, it is necessary that a separation be effected between the uterus and the decidua. As long as the decidua remains connected with the uterus, the chorion villi will continue to enjoy a certain degree of vitality; but, the embryo having ceased to live, this vitality is bereft of developmental power, and the chorion villi, though they may actually grow and increase in size, retain the essential structure which they possessed, when the death of the embryo took place. Accordingly, if the death of the embryo occur very early, and before the appropriation of certain of the villi to form the fœtal placenta has commenced, the ovum may continue to grow, and may remain in the cavity of the uterus, and in such a case the whole of the chorionic membrane would give rise to hydatidiform villi. If, on the other hand, the death of the embryo be postponed until the formation of the fœtal placenta has commenced, the hydatidiform degeneration will be necessarily limited to the part of the chorion which is in contact with the decidua serotina."

The size of the hydatidiform cysts differs in different cases. They continue to grow, as long as the uterus is tolerant of their presence, by virtue of absorption from that part of the decidua which remains still connected organically with the uterus.

"After the chorion villi have attained a certain degree of development," Dr. H. supposes that "they are no longer capable of undergoing the hydatidiform degeneration. Regular bloodvessels having taken the place of these processes, the conditions necessary for the production of the peculiar vesicular enlargements no longer exist. The period within which the hydatidiform degeneration may occur, does not probably extend beyond the middle or end of the third month at farthest, and if the fœtus perishes subsequently to this time, the hydatidiform degeneration will not be met with."

In respect to the cause of the early death of the embryo in cases of vesicular mole, Dr. H. believes that it consists in a certain degree of sustained contraction of the uterus in the early weeks of pregnancy, sufficient to reduce materially the supply of blood sent to the maternal membranes, through which the fœtus is nourished. The first result, under such circumstances, is the death of the fœtus; the second—supposing the ovum still to retain its connection with the uterus—the degeneration of the chorion villi above described.

In many cases the contraction of the uterus is due to mammary irritation from

suckling during the first weeks after conception, a common cause, as Dr. Barnes has shown, of abortion. The development of the embryo may be arrested, Dr. H. remarks, from a variety of other causes, into a detail of which he does not, however, enter.

Dr. Robert Barnes contributes a paper on the risk to life in first and subsequent pregnancies. He regrets the want of a sufficient amount of the proper statistics requisite for the solution of this question, which is one of deep interest in itself considered, and of no trifling importance in its bearing upon the subject of life insurance in the case of child-bearing women. In hopes that private practitioners may be induced to keep such a record of their cases as would be adapted to furnish the necessary data for the solution of the question referred to, Dr. Barnes furnishes a form after which the record should be made.

"If I were to give my own impressions," he remarks, "I should say that the risk of a first pregnancy is certainly greater than that of a second, third, or fourth. Women lying-in for the first time have to prove their puerperal capacity. At the first delivery they encounter those difficulties which arise from faulty pelvis conformation, and those perils which arise from constitutional defects. These difficulties and perils, if surmounted, being revealed at the first labour, may, in some cases, be averted or lessened in the future. There can be no doubt that women pregnant for the first time are more liable to difficult labour and its consequences, such as exhaustion and phlebitis, to convulsions, to complications calling for instrumental aid. Women who have gone through one labour, or two, or perhaps three, without complications, may be regarded as running the least risk from pregnancy. But after the fifth labour I believe it will be found that the risk begins to rise rapidly, so that in the eighth or subsequent pregnancies the risk will be fully equal to that of a first pregnancy. Pluriparæ, according to my observation, are more especially liable to malposition, to retroversion of the uterus, to hemorrhage from placenta prævia, from accidental separation of the placenta, and also from atony of the uterus. They are more liable to disease of the uterus, and attendant diseases of the placenta, leading to adhesion and hemorrhage. And not seldom they enter upon labour with minds depressed and powers impaired by the inroads made upon their constitutions by previous child-bearing and the cares of maternity."

Some few of the remaining articles contained in the present volume of "Obstetrical Transactions," have been presented to our readers during the past year in the proper department of our quarterly summary. The entire volume holds out a fair promise of what these transactions will be in future; leading us to believe that to the coming volumes we may confidently look for much that shall increase our knowledge in the science and art of midwifery. D. F. C.

ART. XXIII.—*Report on the Health of the Waterguard and Waterside Officers of Her Majesty's Customs during* 1859. By J. O. McWILLIAM, M. D., F. R. C. P., F. R. S., C. B., R. N., Medical Inspector of Her Majesty's Customs. 8vo. pp. 88: London, 1860.

IN the report made by Dr. McWilliam for the year 1858, noticed in our number for April last, it was shown that, notwithstanding the extremely offensive condition of the river Thames, from the accumulation in it of the sewage of London and other putrescent matters, the health of the officers and men in the British revenue service who are employed for many hours, day and night, along and upon the river, remained unaffected. In the report before us, for the year 1859, it will be found that the condition in respect to health of the persons referred to was, during the latter year, equally favourable.

The number of men employed in the waterside department during 1859 was reduced to 461, by the withdrawal of 50 weighers, whose employment being only occasional, rendered uncertain the amount of sickness occurring among them, and by the transfer of 18 gate-keepers to the waterguard department. The entire strength of the river service in 1859 amounted to 1,299.

From tables given in the report it appears that the number of attacks of sickness during 1859 was, in the waterguard 40, and in the waterside department, 14 below those of 1858, and in both cases they were below the average of the preceding twelve years, although up to 1857 the waterguard was about 100 short of its present strength.

The daily sick, and the percentage in the waterguard were somewhat below and in the waterside department slightly above the average. The high percentage of sickness among the tidewaiters during the year 1859, relatively to that of the other classes of officers of the same department, is, Dr. McWilliam observes, as remarkable as it has been in former reports.

The meteorology of the *first quarter* of 1859 was, we are informed, altogether exceptional. Unlike the first quarter of 1858, which was extremely cold, the weather was unusually mild and dry—the mean temperature (43.3) exceeding by 4.9 that of the mean of 88 years, and the rain-fall being 1.6 below the average.

With the exception of some chronic cases left from the previous year, the general health of the waterguard was favourable, the additions to the sick list during the quarter having been 178, against 195 in the corresponding period of 1858. A case of fractured patella, and one of accidental drowning occurred in this department. A tidewaiter was discharged as unfit for service, on account of epilepsy, and a waterman, long the subject of asthma, was superannuated.

In the waterside department the general condition of health was also good; but there were several deaths in this department from long standing disease.

Second quarter. In the early part of April the temperature was 7° above the average; during the last three weeks of the month, however, the weather was colder than usual, and N. E. winds prevailed. The whole of May, with the exception of the last week, when the wind changed, was cold, and during the third and fourth weeks a considerable quantity of rain fell. On the 20th of May rain fell to the extent of .77 inch, the effect of which rainfall is adverted to in another part of the report. During June, throughout, the temperature, although not so high as during the same month of 1858, was above the average. Rain fell occasionally during the first and second weeks, and in the third week there were thunder storms. North-east winds prevailed until the last week in June, when there was a change to south and south-west.

The total admissions to the sick list during the quarter were 162, against 202 in the same quarter of the previous year. With the exception of three or four acute cases, there appears to have been little disease of any kind in either the waterguard or waterside department. Some cases of diarrhœa appeared in June. Not more than twelve in the two departments were such as to necessitate the absence of the officers from duty.

A gate-keeper, subject to asthma, a tidewaiter, with liability to apoplexy, a waterman with chronic bronchitis, a tidewaiter, worn-out with age and rheumatism, and an extra weigher, afflicted with rheumatism, were placed on the superannuation list. There was only one case of death during the quarter. It occurred in a tidewaiter who was placed (April 9th) on board a vessel at Gravesend from St. Michael's, with fruit. The vessel proceeded to London and discharged her cargo, when the officer left her, and returned, on the 12th, to his residence at Gravesend. Next day he was placed on the sick list, with symptoms of ague, which from the intermittent passed to the remittent grade; the patient died on the 29th of April. He stated that he first sickened after inhaling the stench from a sewer, near to which the vessel he had in charge was moored. Without denying the possibility of his attack being caused by the emanations from the foul sewer, it appears to Dr. McWilliam, nevertheless, more probable that the germ of the disease had been imbibed by the patient before going on board the vessel on the 9th of April. Ague, it is well known, is an endemic of lower Gravesend, having become, according to Dr. Russell, within the last two years more than usually prevalent there, in common with other parts of the coast of Kent.

The weather during the *third quarter* of 1859 was remarkable for a great increase of atmospherical temperature. July throughout was exceedingly hot, the thermometer on the 12th reaching 92° Fahrenheit, on the 13th 93°, and on the 18th 93°. During ten successive days the mean temperature of the day and

night exceeded 70°, which, Dr. McWilliam remarks, is beyond anything of the kind hitherto recorded upon trustworthy evidence.

Coincident with the increase of temperature, there was a marked rise in the mortality from diarrhœa among the general population of London. In the week ending July 23d, diarrhœa proved fatal to 415 persons in London, a mortality greater than that of any week in previous years from the same disorder.

The number placed on the sick list in the two departments from all causes was 252, very nearly the same as that (251) of the corresponding quarter of 1858. The actual amount of diarrhœa which occurred during this period it was impossible to ascertain, as many, more especially those on shipboard, treated themselves with the medicine supplied them in advance, and made no further application for advice. There were in all 72 cases of diarrhœa causing temporary absence from duty—of these, two manifested symptoms of a decidedly choleraic character.

The stench of the river, although frequently noisome, did not appear to increase to an extent commensurate with the unusual elevation of temperature. It seemed to Dr. McW. probable that the lime and other agents employed in the sewers had, in a considerable degree, arrested the progress of decomposition in the sewage, and the consequent evolution of offensive gases from the river.

Two of the department were superannuated for infirmities incident to age. One who had been only a short time in the service, was discharged because his constitution was not found adequate to the duties of his office. There were two cases of dysentery, of which one proved fatal in little more than a week, and the other recovered after being in a state of extreme exhaustion. There was one death from drowning.

There were frequent variations of temperature during the fourth quarter of 1859, which had a marked influence upon public health.

October began with unusually mild weather, which lasted until the end of the third week, when the temperature fell 12° below the average of the same period. November also commenced with mild weather. On the 9th, however, the temperature suddenly fell, and a period of intensely severe cold set in, which continued until the end of the third week in December. This period was marked by frequent fogs, and occasional falls of rain and snow. The latter part of the month was mild, with wet weather, and south-westerly winds.

In consequence of the defect of temperature, compared with that of the corresponding quarter of 1858, there was a proportionate increase of admissions to the sick list. The prevailing complaints were rheumatism, sore throat, and affections of the respiratory organs.

Six of the waterside department were superannuated during the quarter; four died from disease, and two from accident.

With respect to the state of the river Thames during the summer months of 1859, Dr. McWilliam remarks, that its foul condition in the previous year was preceded by a heavy fall of rain, which flushed the sewers, and caused the discharge of their accumulated contents into the river. So far as he observed there was no complaint in 1859 of the condition of the river until the 20th of May, when there was a heavy fall of rain, which washed an immense quantity of sewage into the river at the time most favourable for its detention there; that is, when the tide had flowed about a third. From that time the stench from the river, with some very notable intermissions, sensibly increased as the temperature of the river exceeded that of the atmosphere. The mean temperature of the air and of the river was greater in June, 1858, than in the same month of 1859; but both the atmospherical and river temperatures in July and August, 1859, greatly exceeded those of the corresponding month of 1858; while the temperature of the river, as well as of the atmosphere, in September, 1859, was surpassed by that of the same month in 1858.

When the high temperature, and its necessary consequence, rapid evaporation, set in, the river was already almost unprecedentedly low, from the small amount of rain which fell in the latter months of 1858, and throughout the spring and part of the summer of 1859. The freshet or ebb-flow thus impoverished had but little force, and allowed the tidal wave to advance much beyond its usual limit in the river.

The mud banks on the river-sides and in the shallows, ploughed up by this strong up current, largely contributed to the pollution of the river at the flood tidal period, while the corresponding deposition and extensive mud exposure maintained the offensive smell during the ebb.

It was commonly observed during the summer of 1859, that although the river was offensive in the latter end of May, and in the three following months, more especially in July, there were remarkable intervals of comparative freedom from smell, and that a heavy rainfall at one time increased, and at another time diminished, the river effluvia. Those opposite results from rain depended, as Dr. McW. remarks, upon the state of the tide, and the amount of sewage in the sewers at the time it fell. Thus, by the rainfall of the 20th May an accumulation of sewage was brought into the river shortly after the tide had begun to flow, and being thus carried far upwards, was long detained, impregnating the river with an offensive odour, while the intromission of sewage into the river, from the rain storm of the 12th June, took place at ebb tide, and was carried well down the river; this, with the dilution of the water from the increase of the freshet, led to a marked improvement in the condition of the river, which lasted ten or twelve days. There were, also, periods of marked improvement in the state of the river when there was no rain. Thus, it is stated, there was an absence of rain from the 4th to the 18th July, and the river, after being reported on the 12th as "very bad" at London Bridge, underwent a remarkable change for the better during the four days following. Rain to the amount of 2.1 in. fell between the 18th and 21st July—more than half of it on the latter day, at low water, the period most favourable for the detention of evacuated sewage, and the consequent pollution of the river water, yet the effluvium sensibly decreased from this time up to the 10th August, when, after a fortnight's interval of comparative freedom from smell, the river was again reported as "thick and smelling badly" at London Bridge. A favourable report was also made on the 27th of the same month, after .62 in. of rain had fallen at Chiswick on the 25th. By this time, however, the temperature of the river, as well as of the air, was decreasing, and there was little or no complaint of the river afterwards. The London Bridge observations were continued until the 20th of September, but, with the exception of one or two days at the beginning of the month, the river may be said to have been nearly free from offensive smell. From the reports of the Customs officers, from observations taken three times in the 24 hours during the hot months, by an officer from the Thames Conservancy, from his own observations, and from information from various other sources, Dr. McW. is of opinion that the river, although on one or two occasions, for a short while, more offensive, was much less continuously noisome during the past than during the previous year, notwithstanding the great and prolonged increase of temperature in the summer, the preceding defective rainfall, and consequent diminution of fresh water, and other unfavourable influences of 1859. Dr. McW. thinks it must be admitted that such a result, under the adverse circumstances stated, was due in a great measure to the deodorizing measures carried out during the summer months by Professor Miller, of King's College.

These measures were directed to the sewage while yet in the sewers, and were commenced about the end of the second week in June, with lime only. Lime to the extent of about one hundred tons, and chloride of lime to the amount of from ten to twelve tons, were, during the hottest weather, mixed with the drainage water at from 200 to 600 yards above the outlet of the sewers. The use of the lime was discontinued at night after the 12th of August, and both lime and the chloride were stopped after the 3d of September. Carbolic acid, a species of creasote from coal tar, was tried for some time upon the Fleet sewer; but it was abandoned on account of the complaints made by the inhabitants of the smell caused by it.

The total quantity of disinfectant agents used during the season were, as we learn from the reports of Dr. Miller and Mr. Bazalgette, about 2,481 tons of chalk lime, 478 tons of chloride of lime, and 56 tons of carbolic acid, at a cost of about 17,733*l.*—that is, almost $89,000.

The favourable sanitary condition of London during the summer of 1858, notwithstanding the offensive state of the river, had the effect, we are told, of

quieting the apprehension that the public health would be endangered in the event of the river again becoming foul.

From the report of the Registrar-General, it appears that the year 1859 showed an increase in the birth-rate, and a decrease in the death-rate of the country. The deaths in London, however, during July, August, and September, exceeded the average. Diarrhœa was unusually fatal over the metropolitan area—the disease having proved fatal to no less than 415 persons in the course of a single week in July. This excess of mortality, according to the Registrar-General, was owing to the high temperature of the atmosphere facilitating the decomposition of impure refuse under the houses, in the streets, and in the river.

Dr. McWilliam presents a series of tables showing the cases of disease from all causes, which occurred among the revenue officers employed on or near the river Thames, during the months of June, July, August, and September, from 1855 to 1859 inclusive—the number of daily sick, and the cases of diarrhœa observed during the same periods.

The officers referred to—from the fact that their duties require them to spend their entire time either upon the river or in its immediate vicinity—were necessarily fully exposed, at all hours and seasons, to whatever morbific emanations may be supposed incident to a river such as the Thames, receiving not merely the offals from the shipping, with which its wharves and docks are always crowded, and from the houses, workshops, and public institutions along its shores, but the entire sewage of one of the largest and most populous metropolises of Europe. The almost entire exemption from disease of the revenue officers employed upon the Thames, during the summers of 1858 and 1859, when the waters of the river had become thick and foul with putrescent matter, and gave out the most noisome effluvia, is certainly a most curious and startling fact, which would seem to demand a very essential modification of our present views in relation to certain points connected with the etiology of disease.

From the tables given in the report before us, showing the number of cases of disease, which occurred during the months of June, July, August, and September, of the years 1855 to 1859 both inclusive, among the revenue officers stationed on the river Thames, it appears that the attacks of illness during 1859 were not only below those of 1858, but below the average of the corresponding months of the four previous years. That the number of daily sick was below the average in the waterguard, but above it in the waterside department, and that, with respect to diarrhœa, the number of cases during the four warm months was during 1859 in excess of that of 1858, but as nearly as possible the same as the average of the four preceding years.

"What," remarks Dr. McWilliam, "may be the result of a succession of hot seasons with a foul state of the river, it is impossible to predict; but, judged by the experience of the summers of 1858 and 1859, it would appear that exhalations from the river, however noisome and offensive to the senses, and however much they may demand the employment of means for prevention or mitigation, do not necessarily produce those forms of disease usually ascribed to malarious origin. Diarrhœa and cholera were much apprehended in 1858, but the former disease was less prevalent than usual, and the latter fortunately never made its appearance. In 1859 there was more diarrhœa among the Customs officers than the average of the four previous years."

Cholera, moreover, we are told, was brought into the Thames from the continent, by at least three vessels in the course of the summer, but the disease in neither instance spread; showing that the filthy condition of the river was of itself incapable of generating cholera, while it presented no fitting medium for the germination of the seeds of the disease when introduced from abroad.

As a fact replete with the deepest interest to a community like Philadelphia, the sewerage of the larger and most populous portion of which is into a river having some features in common with that of the Thames at London, we may mention that in March, 1860, the Thames was fuller and cleaner than it had been for several preceding years. This has been mainly owing to the large rainfall at the end of 1859 and during the early portion of 1860, and to the frequent agitation and consequent increased exposure of the water to the action of the air by long prevailing gales. D. F. C.

Art. XXIV.—*A Review of Dr. Otis Frederick Manson's Essay on Malarial Pneumonia.* By W. T. Howard, M. D. North Carolina Medical Journal, February and October, 1859, and January and March, 1860.

The Essay referred to in the title was presented to the Medical Society of the State of North Carolina, and published in their Transactions for 1857. It is, we regret to say, more distinguished for its imaginative diction than for the correctness of its phraseology, the completeness of its original observation, or the acquaintance which it displays with the literature of the subject it professes to discuss. Dr. M. is persuaded that "Malarial Pneumonia" would have been discovered long ago, if Southern physicians in the United States had only observed for themselves, instead of pinning their faith upon treatises published in heretical France, England, and Italy; and Dr. Cartwright, of New Orleans, as recently as May of the present year, in a letter to Dr. Manson, congratulates him on North Carolina's "taking the lead in freeing the South from its worse than colonial vassalage to European and Northern medical authority."

It would seem that these gentlemen, and others who applaud them, and disseminate their opinions in print, must have remained strangely ignorant or unobservant of what every one else is acquainted with. One would have supposed that the complete elucidation of the influence of malaria upon the type of pneumonia, published by Dr. La Roche in the *Charleston Medical Journal* for 1853, and in his work on the same subject in 1854, would have left no doubt upon the mind of any one respecting the nature and degree of this influence; and yet, for aught that appears, the author of the Essay on "Malarial Pneumonia" was not even aware of the existence of Dr. La Roche's publications, nor of the numerous articles in which the same theme had been previously discussed by foreign and by American writers. To all who are equally unfortunate, the papers of Dr. Howard, published in the same locality in which Dr. Manson's Essay appeared, must prove in the highest degree interesting and instructive; interesting from the admirable critical spirit which pervades them, and from which none of the errors of his opponent's thesis escape, and instructive from the complete analysis which they present of the descriptions, given by a large number of physicians, of this modified form of pneumonia, which we should have supposed to be a familiar one, to all whose field of practice lies in a malarious region.

The elaborate manner in which both Dr. La Roche and Dr. Howard have performed their self-imposed task, while it testifies to their learning, acuteness, and critical skill, seems, nevertheless, to savour of a Quixotic spirit. But if they have reduced the imaginary giant, which for a while terrified some of our confrères, to the proportions of a very familiar wind-mill, we cannot refuse their claims to the homage which the destroyers of giants and dragons received from their countrymen in times when such things were; for we doubt if any monster of them all could number half as many victims as mark the progress of a false doctrine applied to the practice of medicine.

Malarial pneumonia is neither more nor less than a pneumonia with whose phenomena those of a malarial fever are conjoined; the two affections may, as Grisolle expresses it, be developed simultaneously under the impression of the same exciting causes; or either may arise in the course of the other, although it is most usual for the malarial disease to occur in the course of the inflammation, precisely as it may do under the influence of any cause whatever, physical or mental, that diminishes the power of the system to resist or to prevent the germination of the malarial seeds.

Dr. Howard, after having examined in detail the phenomena which characterize the simple and also the complicated form of pneumonia, states them summarily as follows:—

"1. That in simple, and 'malarial pneumonia,' alike, the *invasion* is preceded by *prodromata* in a certain proportion of cases, attested by the phenomena of general febrile disturbance, or of pulmonary catarrh, varying in duration from one to several days before the appearance of any local symptom of the affection.

"2. That in simple, and 'malarial pneumonia,' alike, the onset is *sudden* in

the vast majority of cases, and heralded by a *chill*, usually of marked intensity, and of variable duration.

"3. That in simple, and 'malarial pneumonia,' alike, *pain in the side* follows close upon the *chill*, constitutes a prominent symptom, and is present in an immense majority of the cases.

"4. That in simple, and 'malarial pneumonia,' alike, *dyspnœa* and *cough* generally soon succeed the fever of reaction, and vary greatly in their intensity, without offering anything distinctive of the one from the other.

"5. That in simple, and 'malarial pneumonia,' alike, the *expectoration* presents great diversity in its character and appearance; but that the thin, slightly tenacious, bloody expectoration which Dr. Manson deems diagnostic of the 'malarial' form, is met with also in cases (chiefly of an asthenic type) presenting no indications whatever of a miasmatic element, and, on the other hand, is absent in many cases—much the larger number, according to our experience—in which this element is most conspicuous.

"6. That in simple, and 'malarial pneumonia,' alike, *cephalalgia* is a very frequent and prominent symptom.

"7. That in simple, and 'malarial pneumonia,' alike, *nausea* and the *vomiting* of bilious matters may occur; but that they are much oftener present, and much more prominent, in the 'malarial' form.

"8. That in simple, and 'malarial pneumonia,' alike, as they occur at the South, the *intestinal mucous membrane* evinces greater susceptibility to irritants than it usually exhibits in colder latitudes; but that this tendency is not peculiar to, or in any manner diagnostic of, a malarial diathesis.

"9. That in simple, and 'malarial pneumonia,' alike, convalescence is not usually announced by a particular kind of *inodorous stools*.

"10. That in simple, and 'malarial pneumonia,' alike, the character of the *febrile movement* may be evidently remittent; but that, generally, this character of the fever is much more marked in the latter, and constitutes its most prominent distinctive feature.

"11. That in simple, and 'malarial pneumonia,' alike, the condition of the *pulse* depends upon the character of the disease, whether this be of sthenic or asthenic type; but that, at the present time, its character may be regarded as, usually, indicative of a *status* intermediate between the two. Yet, that, since the grade of inflammation is habitually less elevated in 'malarial,' than in ordinary simple pneumonia, the pulse, in the former, generally betokens a diathesis less exalted, without offering, however, anything specially diagnostic of a miasmatic element, inasmuch as, in *typhoid* pneumonia, *par excellence*, the pulse is soft and compressible almost always.

"12. That in simple, and 'malarial pneumonia,' alike, *delirium* is of frequent occurrence; but that, neither by the frequency of its occurrence, the time at which it appears, nor by its character, does it offer any special indication of the 'malarial' form. Indeed, so far does its supervention late in the career of this variety of pneumonia fall short of constituting one of its diagnostic features, as Dr. Manson has affirmed, that Trousseau represents it to be of habitual occurrence in fatal cases of pneumonia; for, says he, in speaking of a case that terminated unfortunately—'I need not add that the man was *delirious* during the last two days of his life, which is *always the case when death is inevitable from inflammation of the parenchyma of the lungs.*'[1]

"13. That in simple, and 'malarial pneumonia,' alike, *relapses* are not very infrequent during some period of convalescence.

"14. That in simple, and 'malarial pneumonia,' alike, the disease is characterized by well-defined *physical signs*, in the immense majority of cases; and that there is no satisfactory evidence that, in this respect, they offer any essential difference.

"15. That in simple, and 'malarial pneumonia,' alike, *post-mortem* examinations show that the inflammation almost always presents the *lobar* form—ordinary *lobar pneumonitis*—characterized by the usual products of the inflammatory process, when seated in the pulmonary parenchyma.

[1] Virginia Medical Journal, vol. x. 488.

"16. That in simple, and 'malarial pneumonia,' alike, the disease is most common during the colder months of the year, and, in the majority of instances, is referable to *causes* connected with the action of cold and atmospheric vicissitudes; these, when they operate upon constitutions previously impressed by malaria, arousing into activity that latent poison, and producing the complicated disease under consideration; but that, in both varieties of pneumonia, the disease is sometimes observed, when it is impossible to trace it to any evident exciting cause.

"17. Lastly, that this complicated disease has been described by many authors, both ancient and modern, and has been clearly set forth in the writings of those of recent date, and of easy access; so that no physician can justly plead ignorance of it on the score that it 'has not attracted the attention of recent investigators, and is only cursorily and imperfectly noticed by any of the modern standard authorities,' as Dr. Mauson has so bluntly affirmed."

It would lead us too far to notice all of the interesting points presented in this Review; we can only further allude to the excellent account which it contains of the treatment of malarial pneumonia by bark and its preparations, which, as we are reminded, is almost as old as the use of bark for periodical fevers themselves. The medicine will not cure the pneumonic inflammation, but it will remove one of the most serious obstacles to its cure.

That such narrow and ill-founded notions as those which Dr. Howard has thought it worth his while to refute, should not only be entertained by a private individual, but, to some extent also, should be countenanced by his brethren, only shows how necessary it is that we should endeavour to attain to that all-embracing view which recognizes in man the same essential qualities and susceptibilities whatever zone he inhabits, and whatever variety of the human race he belongs to. It shows us that we should follow the traditions of our art (whose greatest teachers have been generally those who travelled most), and that, thus enlightened and fortified by the instructions of men richly furnished with knowledge, we should address ourselves to the task of modifying our therapeutical rules according to the race, sex, age, habits, &c., of each patient, and the climatic, endemic, or epidemic influences which mould the type of his disease.

A. S.

Art. XXV.—*The Principles and Practice of Modern Surgery.* By Robert Druitt, Licentiate of the Royal College of Physicians, London; Fellow of the Royal Medical and Chirurgical Society, of the Medical Society of London, &c. &c. A new revised American, from the eighth enlarged and improved London edition, with four hundred and thirty-two illustrations. Philadelphia: Blanchard & Lea, 1860. Octavo, pp. 695.

This work of Mr. Druitt is decidedly an exceptional one; compendiums and vade-mecums, being generally catch-penny publications. As a class, such works have always been viewed with little favour in this Journal. But in Mr. Druitt's book, though containing only some seven hundred pages, both the principles and the practice of surgery are treated, and so clearly and perspicuously, as to elucidate every important topic. The fact that twelve editions have already been called for, in these days of active competition, would of itself show it to possess marked superiority. We have examined the book most thoroughly, and can say that this success is well merited.

One cause of the superiority of this system of surgery arises, probably, from the fact that it was first written when the author was still a student, before he had his own particular experience to relate, and was willing and desirous of writing down simply the principles and practice of general experience, that is, the experience "formed by placing together the discoveries and observations transmitted to us by a multitude of practitioners who have lived at divers times and in divers countries." The experience of any one man can be, as the distinguished writer from whom we have just quoted, expresses it, but "a mere point,"

in comparison to this general experience.[1] Surgery, its science and art, is far too extensive, and comprises far too much, for personal experience to avail in obtaining a knowledge of it, no matter how long and how devotedly one may labour; and the more private experience is thrust before this general experience, in attempting to instruct others, the less value would we place upon the teaching. Under certain circumstances, on one or two subjects, the personal experience of a surgeon may have considerable weight; but this is as far as can be conceded; and a work, treating of the whole subject of surgery, can only be valued from being a faithful exponent of general surgical experience, of the principles and practice that have been sanctioned and preferred by numbers of eminent men.

Mr. Druitt's book may be considered as setting forth correctly this general surgical experience of which we have spoken, and as faithfully representing the condition of the art and science of surgery, at the present time; and this, in a work of the kind, is the highest praise that can be bestowed.

His book, moreover, possesses the inestimable advantages of having the subjects perfectly well arranged and classified, and of being written in a style at once clear and succinct. The advantage of a good classification can only be appreciated by witnessing the inconveniences of a bad one. We know a work in which staphyloma and polypus are placed together as *excrescences;* another, where stricture of the urethra, accouchement, and cataract, are all in the same class as *obstructions;* and even Delpech has placed trichiasis and club-foot together, under the head of *deviations*, and hernia and dislocation of a limb in the same chapter, entitled *displacements*. The disadvantages of a diffuse and inflated style are still greater than those of awkward classification, of which examples have just been cited. To make a medical comparison, such a style has, in a book, the same effect that general dropsy has in the body.

Another great advantage of Mr. Druitt's book, particularly of the present American edition, is the fulness and the excellence of its illustrations. It is impossible to overrate the increased facilities thus afforded to the study of the more practical portions of the work. The appearance of the disease, the position of the operator, the instruments to be used, the course of incisions, and the application of the dressings can be comprehended at a glance.

Those acquainted with the last American edition of this work, will find it to have undergone, in the four editions it has since passed through in England, very considerable and important changes. It is the same book, but it has grown much stouter and stronger, so that it contains now one-third more matter, and nearly two hundred and fifty more illustrations than when last presented to the profession in this country. Some portions of the work have been entirely written afresh, in order to be strictly in accordance with the most recent improvements and discoveries. Among these may be indicated the chapter on Inflammation, and also that on Gunshot Wounds, the materials for which were afforded by Mr. George Lawson. The chapter on the Eye has been very considerably improved, under the revision of Mr. Haynes Walton, and now contains a very useful account of the use of the Ophthalmoscope. Among other subjects that have received special addition and improvement, must be mentioned the operations for excision of the joints; the radical cure of hernia; the treatment of anchylosis by forcible extension; ovariotomy; the treatment of vesico-vaginal fistula; and the administration of anæsthetics.

The surgeon under whose supervision this present edition has been passed through the press in this country, has made to it some few additions, called for principally by peculiarities and novelties in American practice. The recent publication, also, of a number of surgical treatises, Gross's System of Surgery; Toynbee on the Ear; Ashton on the Rectum; and, above all, the excellent work of Hamilton on Fractures and Dislocations, has enabled him to introduce a number of very valuable illustrations of recently invented instruments and

[1] "Cette expérience propre à chacun n'est qu'un point, en comparaison de l'expérience générale qui s'est formée par le Concours des Découvertes et des Observations qui nous ont été transmises par une multitude de Practiciens qui ont vécu en différens tems et en différens lieux."—*Mém de l'Acad. Roy. de Chirurgie,* tom. iii. p. 6.

surgical procedures, and to add to the number of the bibliographical references, by which this work is enriched.

In the getting up of this volume, the publishers have made the best use of the great facilities at their command, and have omitted nothing in the way of paper, letter-press, or illustrations, which could add to its appearance or its usefulness. W. F. A.

ART. XXVI.—*On the Theory and Practice of Midwifery.* By FLEETWOOD CHURCHILL, M. D., M. R. I. A. Professor of Midwifery, &c., in the King and Queen's College of Physicians in Ireland. With Additions by D. FRANCIS CONDIE, M. D., author of "A Practical Treatise on the Diseases of Children," &c. With one hundred and ninety-four Illustrations. A new American, from the Fourth corrected and enlarged London edition. Blanchard & Lea: 1860. 8vo. pp. 665.

AMONG the many systematic treatises we possess, on the theory and practice of midwifery, we know of no one better adapted for the use of both student and practitioner than that of Dr. Churchill. Presenting a full and faithful picture of the actual state of our knowledge in respect to every department of obstetrical science and art, its delineations, at the same time, are so direct and clear, that no one, who may have occasion to consult its pages, can fail to acquire the information he desires, and in a form the most exact and satisfactory.

The former editions of the work have been received in Europe and this country with the most marked approbation, and to an equally if not more favourable reception the reprint before us, considered in reference solely to the original text, presents even stronger claims than its predecessors—from its greater fulness, and the careful revision every section has undergone, with the intent to render it a faithful exponent of the important branch it professes to teach.

The account given in the chapter on puerperal fever, of a gastro-enteric fever to which puerperal females are liable, is deserving of an attentive study. The fever referred to is one of not unfrequent occurrence, and has been known, occasionally, to prevail as an epidemic. Although its course and termination are, in general, far more favourable than those of true puerperal fever, yet its occurrence is always alarming to the patient, and if its true character be not well understood, and its diagnosis, at once, correctly made out, it is liable to create unnecessary anxiety in the mind of the practitioner—or even to lead him to the adoption of an improper course of treatment.

The chapter of Dr. Churchill on sudden and unexpected death subsequent to delivery in cases where this has been natural and apparently altogether favourable, is a valuable and instructive one. It is only recently that this subject has received the close attention its importance demands. Even still it is enveloped in not a little obscurity—so as to render it scarcely possible to give anything like a complete and satisfactory history of it. In addition to a few of his own, Dr. C. has collected the several observations in relation to it on record; these he has classified, as far as practicable, and appended such practical deductions and suggestions as they would seem to warrant.

It is only when the present is compared with preceding editions that any clear conception can be had of the rapid growth and vast improvement the work has undergone under the careful supervision of the author. From, at first, a meagre outline, to one, now, of the most comprehensive treatises we possess on obstetrics as a science and an art. A treatise from which but little is omitted that is adapted to throw light upon the true principles of midwifery, or which, as practical precepts, have received the sanction of the best and latest authorities. While, at the same time, the clearness, candour, and precision which characterize all its teachings; the fulness of its statistics on every subject it embraces, in relation to which statistics can be considered of any real value, and the copiousness and accuracy of its references to recent standard authors in whose writings the subjects discussed can be more fully discussed if desired, render it valuable as a text book for the use of the teacher, and as a manual for young practitioners.

A chapter on "Obstetric Morality" is appended to this edition, which, we are convinced, will be read with both pleasure and profit. It is a laboured defence of the morality of the operation of craniotomy in those cases in which alone it is justifiable—namely, where it is the only means which furnishes a chance by which the life of the mother may be saved, and where its omission would necessarily consign both her and her unborn offspring to certain death. The defence appeared originally in the *Dublin Quarterly Review*. Dr. Churchill declares that he is no advocate for the operation of craniotomy. In every case in which one or other is available, he would substitute either the forceps or the induction of premature labour. His only aim in the article which forms the appendix to the edition before us, is to present to "those who are now practising midwifery, and those who are preparing to practise it, the precise reasons for admitting or rejecting the operation" of craniotomy, and the basis on which is founded the right of the instructed and experienced obstetrician to perform it whenever he shall convince himself, after due deliberation, of the absolute necessity there exists for a resort to it.

The additions of the American Editor are numerous and pertinent, and well adapted to increase the interest and value of the work. A very considerable addition, we perceive, has been made to the pictorial illustrations of the text, while, in an appendix, copious extracts are given from a manual by Dr. Churchill on the qualifications and duties of monthly nurses. From these some valuable hints may be derived by the young practitioner, while in the hands of an intelligent nurse they would tend to increase her skill and consequent usefulness to both practitioner and patient.

ART. XXVII.—*On the Diseases, Injuries, and Malformations of the Rectum and Anus, with Remarks on Habitual Constipation.* By T. J. ASHTON, Surgeon to the Blenheim Dispensary, &c. &c. From the third and enlarged English edition, with illustrations. Philadelphia: Blanchard & Lea, 1860. 8vo. pp. 292, with appendix.

THE rapid exhaustion of two editions of this work, the flattering testimony of the profession, and the opinion expressed by the medical press of his own country, as well as by the Continental and American journals, are referred to by the author with very natural gratification, as sufficient evidence that his effort to direct the attention of the profession to the study and management of a very troublesome and badly comprehended class of diseases, has "not been unsuccessful." Our readers are doubtless already familiar with the reputation of Mr. Ashton's publication, as well as of its superior practical character and comprehensiveness, through the previous editions, the second of which we had occasion to notice to some extent two years ago. (See No. of this Journal for April, 1858, p. 487.) It was then unquestionably the fullest and most satisfactory treatise on the subject in the English language, if not in any other. The third edition is a considerable improvement on its predecessors. Although the "same arrangement of the contents is observed, and the same principles of treatment advocated, the soundness and correctness of which are confirmed by very considerable practical experience," the new volume "has been carefully revised," some parts have been condensed, others have been extended, additional cases have been described and old ones more briefly quoted, and "to render it more useful, illustrations have been added of the appearances presented in the several diseases."

In short, the work has been rendered more entirely independent and original, and certainly does great credit to the author, who has furnished us with an invaluable addition to our means of combating a most formidable and perplexing, as well as ever recurring, class of bodily afflictions.

The illustrations are admirable, although not numerous, and have been reproduced with perfect success in the American reprint. The printing and paper also of the latter are good, and the greater size of the page with a slight reduction in that of the type, have enabled the publishers to present the book to American readers in a very convenient form.

By placing this work within the reach of our brethren of this country, the publishers have conferred a material obligation upon the patients no less than the practitioners of the United States. E. H.

Art. XXVIII.—*A Guide to the Practical Study of Diseases of the Eye; with an Outline of their Medical and Operative Treatment.* By James Dixon, F. R. C. S., Surgeon to the Royal London Ophthalmic Hospital, Moorfields, &c. First American, from the Second London Edition. Lindsay & Blakiston, Philadelphia, 1860. 12mo. pp. 425.

The excellent work of Mr. Dixon is well known to many American readers. Although an instructive monitor to all classes of professional readers, so far as it goes, it is especially a book for beginners The author does not pretend to offer it in competition with the standard treatises, which, by the way, he takes particular care to urge upon the attention of his more advanced readers; nor does he profess to include the whole subject of ophthalmic medicine and surgery as in the compact, yet clear and comprehensive manual of Wharton Jones. His object, which is well expressed in the unpretending title of "Guide to the Practical Study," "Outline of Treatment," &c., is to direct the student in the close and often repeated observation of the various appearances presented by the tissues of the eye under different influences, by which alone a practical knowledge of ophthalmic disease and injury can be acquired. Having shown his readers what to look for in the affected organ, and how to recognize the delicate changes described as resulting from the injury or the morbid action, he provides them with such leading hints for treatment, as his own personal experience had led him to suggest.

In accordance with this plan, Mr. Dixon tells us that he has "chiefly dwelt on the description of *outward* phenomena; for, inasmuch as the peculiar susceptibility of a patient must cause endless modifications of his *subjective* symptoms, a full consideration of these would have expanded my volume from its present moderate dimensions, into a system of ophthalmic pathology."

The volume, therefore, is to be regarded as an introductory manual, which by teaching the reader "*how to learn*," and by urging him to study ophthalmic disorders, where alone their features can become familiar, in the living subject, may prepare him to refer with more interest and advantage to the larger works which are indispensable to the more advanced practitioner.

Mr. Dixon tells us that he "has endeavoured to describe accurately and simply, the appearances of the various tissues of the eye, both in health and disease; and, after twelve years of official duty at the most numerously attended ophthalmic hospital in existence, I need hardly add that every description has been drawn from nature." Nor does he forget, "while attempting to sketch all the principal diseases of the eye," to spare his readers the infliction of the many uncouth and needless terms with which the Greek terminology of the German ophthalmologists has been too often allowed to disfigure our English and American text-books, to the dismay and disgust of the unsophisticated reader who may be so unfortunate as to have no practical acquaintance with the very simple forms of disease which are rendered so repulsive in these barbarous cognomina. "As it is my object," continues Mr. Dixon, in his preface to the first edition, "to speak of diseases as I have *seen* them, without entering upon theoretical or controversial matters, I have, as much as possible, avoided encumbering my text with literary references. Those which it appeared necessary to make are, for the most part, taken from works easily attainable by English students.

"In respect of treatment, I have endeavoured to limit myself to general rules, and briefly and plainly to record what my own experience has led me to prefer. Most gladly would I have avoided all criticism on the opinions of others; but this, in some few instances, when particular methods of treatment have acquired celebrity, was impossible; for, under such circumstances, it seems as much the duty of a writer to offer warnings against a practice which he believes to be

dangerous, as to inculcate that which his own experience has taught him to consider safe and beneficial.

"In relating cases, I have restricted myself to such as seemed requisite to illustrate my subject. Occasionally it happens that to detail a well-marked case affords the best, and eventually the shortest method of describing the phenomena of a disease; and I have, therefore, in some instances, entered even minutely into such details. Those cases, however, which involve many technical points of operative surgery, I have placed separately in an appendix."

We make these quotations from the preface in order to show more clearly, and in the writer's own words, the scope and character of his work; and we do so more especially because, although we wish to introduce the book to the attention of our readers, and would cordially urge them to refer to it as one of the best of its class, it is hardly worth while, at this late day, to present anything more than a very cursory sketch of its contents. It should be said, however, that the present edition is a considerable improvement on the former in several respects. Although the author assures us that he has steadily kept in view his original plan, and endeavoured to correct and improve rather than to amplify, he has, nevertheless, added a good deal of valuable matter. Some of the chapters have been rearranged and considerably extended on certain subjects; and the section on the ophthalmoscopic appearances of the retina and choroid, has been re-written. We notice these improvements in many places throughout the work, and have been unusually interested in the progress towards completeness already made; so much, indeed, that we look forward in future editions, to a gradual growth into the dimensions as well as fulness of a systematic text-book, which shall render it quite as useful a guide to established practitioners as it now is one to students who are only preparing to engage in practice.

We do not mean to say that on most subjects of which it treats, Mr. Dixon's volume will not afford excellent and reliable advice in a very agreeable and often graphic manner, to those who are already far advanced in a practical knowledge of ophthalmic medicine and surgery. No one could fail to read many of its pages with advantage to his own experience and skill; but the greater his acquirement in these respects, the more desirous would he be to learn our author's views upon matters which the latter has not touched upon in his endeavour to keep within limits less discouraging to younger readers.

There are seventeen chapters and an appendix, the latter being occupied with a series of very interesting and instructive clinical cases.

The first fourteen chapters are devoted to the consideration of diseases and injuries of the different tissues and appendages of the eye and their treatment; the last three are occupied with the most important operations performed upon the eye, such as for Cataract in Chapter XV.; for Artificial Pupil, in Chapter XVI.; and for Staphyloma, Strabismus, Entropion, and Ectropion. Removal of the Eyeball, and the use of Chloroform in Ophthalmic Surgery, in Chapter XVII. Chapter I. treats briefly but very clearly, of the Examination of the Eye. The Conjunctiva, in health and in all of its diseased conditions, is considered in Chapter II., and the Abnormal States of the Sub-conjunctival Tissue, in Chapter III. The Cornea, the Sclerotic, the Iris, the Choroid and Retina, the Vitreous Body, the Lens and Capsule, Diseases which involve all the Tissues of the Eyeball (Glaucoma, Scrofulous, Encephaloid, and Melanotic Deposit), Diseases of Uncertain Seat, the Lachrymal Apparatus, the Eyelids, and the Orbit, are the topics of the succeeding eleven chapters, in the order of succession here enumerated.

In the course of these chapters we have met with a great deal that must prove especially useful in a work which, as one of favourite resort, is destined to exert an important influence on the rising and future generation of medical practitioners for some time to come; and although, as already intimated, we should have been glad to meet with a fuller discussion of some important points of practice, we have found very little to reject as not in accordance with the general experience of this country, while there is evidently much that will be cordially agreed to by every ophthalmologist of standing in Great Britain and America. It would be easy to protract this notice by referring to different passages in which certain peculiar views are expressed which have already been objected to by good authorities, to others containing results which are now established although comparatively new,

and to a third class in which he successfully controverts some recent heresies in continental practice. As our object is not to review but to recommend the volume as a desirable one to students, we prefer to direct our readers to its pages for more particular information, with the confident assurance that they will rarely be disappointed in their appeals to it as a reliable guide to the practical study of the diseases of the eye. E. H.

ART. XXIX.—*Cuba for Invalids.* By R. W. GIBBES, M. D., Columbia, S. C. New York: W. A. Townsend & Company, 1860. 12mo. pp. 214.

THIS little work affords a very pleasing sketch of travel in Cuba, and supplies a good many items of information not to be found in more pretentious volumes; its strictly medical portion is introduced, as it were, by way of parenthesis, for the sake of urging the value of a climate mild enough and equable enough to allow of regular open air exercise in the treatment of tuberculous disease. Residents of New York, Boston, or Philadelphia, will read with a sort of envious incredulity of a place like Trinidad de Cuba, where the meteorological records of 13 years show a mean temperature of 80.1° Fahrenheit, the maximum 92°, and the minimum, *only once*, 56°.

A single obstacle stands in the way of the majority of consumptives who would act upon Dr. Gibbes's recommendation, and that is the great expense attending a residence in Cuba. Unfortunately, the *res angusta domi* is no preservative against the fell destroyer, and many a victim is sacrificed solely because his ransom is beyond his means. To those who are more favoured in their circumstances, Dr. Gibbes has rendered an essential service by calling special attention to the sanitary advantages of an island so long famed for its beauty and wealth, artificial as well as natural. J. H. P.

ART. XXX.—*Skin Diseases and their Remedies.* By ROBERT J. JORDAN, M. D., etc. London: John Churchill, 1860: 12mo. pp. 283.

DR. JORDAN was induced to prepare this excellent little work by the conviction that it would supply a want often felt by the profession; and we are only surprised that he was not long since anticipated in his undertaking. In this country especially, very few practitioners have opportunities for extensive observation and experience in regard to diseases of the skin, and hence a manual upon the subject will be likely to prove eminently serviceable.

An introductory essay upon the history of skin diseases in Europe, and their general etiology, relieves in some measure the dryness of this little volume, the style of which is necessarily extremely concise and matter-of-fact. Willan's classification, with some trifling modifications as regards its subordinate details, is adopted, on the very proper ground that it is the most practically useful in reference to diagnosis. A special chapter is devoted to the syphilidæ, and affections of the hair and nails are treated of separately in the concluding portion of the book.

We are surprised to note the introduction of typhus and typhoid or enteric fever among the exanthemata. The *mulberry rash* of typhus, and the *rose tache* of typhoid, are mere symptoms; the essential and distinctive lesions involved in those diseases are such as to completely remove them from the range of cutaneous disorders. Perhaps, however, this remark may seem hypercritical; and certainly the insertion of a subject where it does not strictly belong is better than the omission of anything which should be presented. We cordially recommend Dr. Jordan's manual to our readers, as a sort of guide among the intricacies of larger treatises; the student and the young practitioner especially will find it both convenient and reliable. J. H. P.

ART. XXXI.—*Memoir on the Salubrity of the Isle of Pines.* By Dr. DON JOSE DE LA LUZ HERNANDEZ, Physician and Surgeon of the Royal House of Beneficentia and Foundling Hospital, Member of the Inspection of studies of the Islands of Cuba and Porto Rica, etc. 8vo. pp. 56, Habana, 1857.

THE Isle of Pines, a small island of about one hundred and eighty square leagues in extent, lies in the Caribbean Sea some thirty leagues south of the island of Cuba. It was for a long period reputed to be a place of no account, infested with ferocious crocodiles and annoying and pernicious insects, fitted in fact, only as the haunt of wreckers, pirates and malefactors. It has, however, of late years attracted the attention of Drs. Piña, Hernandez and a few others who, from their own personal investigations, speak in high praise of the salubrity of its climate and the remedial qualities of its numerous mineral springs. The latter gentleman, especially, refers to numerous cases as falling under his own immediate notice, in which tuberculosis of the lungs, scrofula, chronic inflammations of the mucous membranes generally, gout, rheumatism, asthma, paralysis, ophthalmia, otitis, cystitis, epilepsy, and various nervous, uterine and cutaneous affections had been either very materially benefited or entirely cured by a prolonged residence upon the island, and a properly regulated use of its mineral waters, internally and externally.

The Isle of Pines is described by Dr. Hernandez as one of peculiar beauty—possessing a soft, dry, and balmy atmosphere; a clear and beautiful sky, an equable temperature, and the most agreeable prospects. In all directions are seen crystalline brooks of cool, pure, delicious water—meadows enamelled with brilliant flowers of every hue, or woods of gigantic pines, whose thread-like foliage, agitated by the gentle breeze, utters continually a grateful and soothing murmur. If the eye is raised from the many pleasing objects which close at hand abound, and is directed to the distance, it rests upon the steep slope of some commanding eminence, or the peak of one or other of the mountains that occur in nearly every portion of the island, separated by intervening valleys rich in flowers and verdure.

The island rests upon a rocky base, the nucleus of which, in its western sections, consists of granite, granitic marble, and even pure marble. The valleys are covered with or formed in a bed of carboniferous earth, upon the surface of which sparkles a light stratum of ferruginous and silicious sand. In the eastern portion of the island there occurs a calcareous uranitic rock of plutonic origin, produced rather by condensation than by sedimentation, differing widely from the argillaceous and arenaceous or the calcareous lands prevalent in all the western portion of the island of Cuba.

The mineral waters, of which springs abound in most parts of the island, are impregnated with oxygen, and carbonic acid gases, chloride of sodium, sulphate of lime, carbonate of lime, iron, magnesia, chloride of calcium, nitrate of lime, silex, and extractive organic matter. The temperature of these waters is usually about 82° of Fahrenheit's scale.

The Isle of Pines has a fine port, which, if encouragement were held out to induce an emigration to its rich and fertile valleys, of an industrious and enterprising population, would secure for the island a large and profitable commerce with the neighbouring coast of Mexico.

A place so admirably situated as is this little island, possessing so many attractions as a residence for the healthy, and which holds out such strong inducements to the sick and the valetudinarian to seek there for a renewal of health and strength, must, as our author predicts, soon emerge from the state of neglect and contempt to which it appears to have been so long unjustly condemned, and secure for it the necessary care of the government. D. F. C.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Deglutition of Alimentary Fluids.*—Prof. J. H. Corbett, M. D., in a paper read before the Physiological Subsection of the British Association for the Advancement of Science, at its recent meeting in Oxford, endeavoured to prove that there are two distinct forms of deglutition; that, while the alimentary bolus is propelled with rapidity over the epiglottis, fluids can flow in two streams, one at each side of the epiglottis and of the aryteno-epiglottic folds, without the danger incidental to its passage over the central aperture of the larynx. This occurs in the infant and mammal during suction; it takes place in the sipping of fluids, swallowing of the saliva, and during drinking in a continuous draught. Ordinary drinking is accomplished by gentle muscular movements, which should not be confounded with the gulping of fluids. In gulping, the fluid is rapidly and forcibly propelled backwards, and this act somewhat resembles the deglutition of solids.

In experiments made by the author on the dead body, fluid poured upon the dorsum of the tongue passes backwards into the pharynx in two streams, through the grooved passages situated at each side of the epiglottis and aryteno-epiglottic folds.

In the living body, during the deglutition of fluids, the uvula falls forwards upon the tongue, in front of the epiglottis; and both the uvula and epiglottis afford protection to the respiratory apparatus. The fluid is divided by the uvula into two currents, which descend at each side, under the half-arches of the palate; that such is the principal use of the uvula. The anatomical arrangements in the human body are perfectly adequate for the transmission of fluid in this safe manner. The anatomy of the porpoise, in which the larynx rises in the form of a blow-tube for several inches above the level of the tongue, affords a strong confirmation of this view; which is further sustained by instances in which the epiglottis has been destroyed. The distinctness of the two forms of deglutition is also indicated by the fact that the mouth may be filled with food, and yet drink can be swallowed without displacement of the solid aliment.—*Brit. Med. Journ.*, July 21, 1860.

2. *Coloration of the Bones of the Fœtus, by the Action of Madder mixed in the Food of the Mother.* By M. Flourens.—Twenty years ago, I presented to the Academy (3d Feb., 1840) two or three skeletons of pigeons, reddened by the action of madder, which had been mixed for a certain time with the food of those animals. The last experiments of this kind, made in France, were by Duhamel in 1739, just a century before mine. The experiments of Duhamel were almost forgotten, mine were received with curiosity by physiologists.

At the meeting of the Academy on Feb. 24, 1840, passing from my observations on birds to those of mammals, I presented to the Academy the skeletons of two or three puny pigs whose bones and teeth were completely reddened by the action of madder mixed with the food.

To-day I present to the Academy a fact much more curious, and as I believe, quite new. Not merely are the bones of the animal itself nourished with madder, but those of the fœtus also are reddened, and of much deeper colour, by the single circumstance that the mother has been submitted to a diet mixed with madder during the last 45 days of gestation.

And not only have all the bones become red, but the teeth also, and what is remarkable, in a manner much more complete and uniform than when the fœtus being born, is itself submitted, so soon as it can eat, to the madder régime. So much greater permeability does the tissue of the embryo afford to the circulation of the blood of the mother. But it is only the bones and the teeth which become thus affected. Neither the periosteum, nor the cartilages, nor the tendons, nor the muscles, nor the stomach, nor the intestines, nothing, in a word, which is not bone, is thus coloured.

I can show to the academy three pieces which are three parts of the same skeleton.

The first is the right tibia. All the bone is red, but neither the periosteum, nor the cartilages is at all so.

The second piece is the left tibia, a shred of periosteum has been detached at one point, and it is seen to preserve its ordinary white colour.

The third piece is the rest of the skeleton. One may remark above all the teeth which are perfectly coloured.

The sow which gave me this fœtus produced five at the birth. Two were dead, and both were found equally coloured. Three others live, and we may judge by the colour of the teeth that of the rest of the skeleton.

The mother does not communicate directly or immediately with the interior of the fœtus except through the blood. Now, the connection of the blood of the mother with that of the fœtus, in whatever mode that may be, which I shall examine in another note, is a fact full of consequences.

How does the fœtus respire? How is it nourished? Evidently through the blood of the mother. All physiologists have also thought and said so. But does the blood of the mother communicate with that of the fœtus? Here is the whole question, and by the specimens which I bring before the Academy, one may see that it is resolved.

The blood of the mother communicates so fully with that of the fœtus that the colouring principle of madder, the same principle which colours the bones of the mother, colours also the bones of the fœtus.—*Gazette Médicale de Paris*, 16 June, 1860.

[M. Flourens seems to be entirely ignorant of the experiments of our countryman, the venerable Prof. R. D. Mussey, made upwards of thirty years ago, and published in the number of this journal for November, 1829, p. 20 (vol. v.).

Dr. M. caused a sow, during the last eight weeks of gestation, to be fed with madder by mixing it with the food of the animal. The day the farrow was produced several of the pigs were killed, and their bones inspected. "Every bone was strongly tinged with red. *The teeth were stained of a delicate pink colour.*"

This paper is accompanied with a coloured plate, representing the appearances of the teeth and of the thigh bone.

It will be perceived that M. Flourens has been completely anticipated in his discovery by Professor Mussey, and that he is mistaken in supposing it to be "quite new."]

MATERIA MEDICA AND PHARMACY.

3. *The Action of Tea and Alcohol contrasted.*—Dr. EDWARD SMITH read a paper on this subject before the British Association for the advancement of science at its late meeting at Oxford. The object which the author had in view

was to express in a decided manner the action of these two great classes of substances, in order that their suitability in health and disease might be explained, and data given upon which those may argue who advocate a course opposed to the temperance movement. His observations were based upon his own experiments, which have already appeared in the *Philosophical Transactions* for 1859.

He showed, in reference to tea, that it excites all vital transformations; and whilst it increases the frequency, depth, and chemical changes of respiration, it at the same time increases the action of the skin, as shown by the increase of perspiration. Hence it promotes the transformation of food and tissue, and at the same time cools the body. Fat and acids lessen or prevent this action on the skin, whilst alkalies increase it. From such facts he deduced the conditions of system, season, and climate to which tea is applicable, and showed how far such deductions from science correspond with the actual instructive practice of mankind. He showed that it was not applicable in the absence of food, but only when the system was replete with food. It was not fitted for breakfast, nor for those of spare and active habits, nor to certain exertion, nor for those who perspire too freely, nor for prisoners, nor for the ill-fed and the destitute, nor for the young. It was the most fitted for the old, the corpulent, the sedentary, for some forms of deficient accumulation, for soldiers, for hot climates and seasons, unless at the period when, even in these conditions, the skin is too active, and for all conditions in which there is excess of food in relation either to the necessity for it, or to the power to transform it. It is especially fitted to aid in the transformation of starch and fat foods.

He then showed in what respect the action of coffee differs from that of tea, viz., in lessening the action of the skin, and thereby preventing the waste of heat; lessening the necessity for the transformation of food, by acting upon the kidneys, and sometimes upon the bowels. The conditions under which coffee should be taken are therefore very different from those in which tea is applicable, and in practice we do recognize this difference. Coffee lessens the consumption of food, whilst tea increases it; because the former conserves the heat of the body, and the latter disperses it.

The subject of alcohols was fully discussed, and it was shown that the class ought to be broken up, since the members of it contain very different amounts of alcohol; and beers, if not wines, exert their principal action by the elements apart from the alcohol. The author showed that rum acts differently from brandy and gin, and is a true restorative. He stated that there are no points of similarity between the actions of tea and spirits, and that the latter were useful in conditions quite opposed to those in which tea is required, viz., where it is desired to lessen the action of the skin, and at the same time to sustain the action of the heart. In these respects, spirits exert a powerful influence; but in a normal condition, in health, all the evidences of their action show that they are poisons and not foods.

Beers he thought to be valuable according to the amount of gluten, sugar, acids, and salts, which they contain, and hence that the good old-fashioned English ales, made of malt and hops, are of infinitely greater value than the thin bitter trash which has become so fashionable under the name of pale or bitter beer. The action which is of real value is the power which genuine ale has, by its gluten and sugar, to promote the transformation of food, as shown by the author's experiments; and thereby the interesting fact was made out, that in this important respect tea and good beer have an analogous action, and hence that there is truth on both sides of the temperance question. Ales, however, have a greater affinity to coffee than to tea, since they lessen the action of the skin, and at the same time they increase the action of the heart. They are also fitted to certain exertions in a far higher degree than tea, and indeed in many respects they are suited to different conditions. The author reprobated the introduction of ales into India, believing that, from their power to lessen the action of the skin, the conditions under which they would be useful are very exceptional. If, however, they withdrew the soldier from the temptations of the raw spirit named arrack, they would be of some service.—*British Med. Journ.*, July 14, 1860.

4. *The Dietetic and Medicinal Properties of Coca.*—The *Erythroxylon Coca*, a plant which grows in moist and woody regions on the eastern slopes of the Andes, is highly valued by the inhabitants of Peru, Chili, and Bolivia, not only as a medicine, but also as an article of food; and serves with them as a substitute for the tea, coffee, betel, tobacco, haschisch, and opium used by other nations. Its culture, upon which, since the time of Pizarro's conquest, much care has been bestowed, has recently increased to such a degree, that in the year 1856 the revenue of the Republic of Bolivia, from the sale of this herb, amounted to thirteen million of francs—a very large sum, if compared with the small number of consumers (800,000). According to the account of M. Pöppig, and of other well-known travellers, the natives use the dried leaves of the coca plant either by themselves or in combination with a highly alkaline substance called *llipta*, which is prepared from roasted potatoes and the ashes of different other plants; they masticate them like the Malays and the inhabitants of the Indian Archipelago do the calcined leaves of the clavica betel. The use of this masticatory, which is considered a great delicacy, is not, however, confined to the rich; on the contrary, it is particularly among the hard-working Indians that the coca enjoys a high reputation as a nutriment and restorative, and its use is considered absolutely essential for the endurance of fatigue and exertion, so that a labourer in making his contract has a view not only to wages, but to the amount of coca to be furnished. The Inca, who lives at a height of seven to fifteen thousand feet above the level of the sea, and whose meagre fare consists principally of maize, some dried meat, and potatoes of bad quality, believes that he can sustain his strength solely by the use of coca; the porter who carries the mail, and accompanies the traveller over the roughest roads at the quick pace of the mule, invigorates and strengthens himself by chewing coca; the Indian who works half naked in the silver and quicksilver mines, looks upon this plant as an ambrosia capable of imparting new life, and of stimulating to new exertions. It is not surprising, under such circumstances, that this article should be very much abused, and that the evil of intemperance in the use of coca, known as coquear, should be quite as prevailing among the natives of those districts as intemperance in the use of tobacco, alcoholic liquors, and opium is among other nations. They often intoxicate themselves for several weeks, hide in the deepest forests in order not to be disturbed in their enjoyment, and not rarely return home to their family suffering from delirium or decided idiocy.

The child and the feeble old man seize with equal eagerness the leaves of the wonderful herb, and find in it indemnification for all suffering and misery. Be it that the praised efficacy of the plant is merely the effect of fancy or tradition, or that the plant really contains a powerful principle unknown to science, the solution of this mystery is certainly a worthy theme for scientific inquiry, and the investigations of Dr. MANTEGAZZA deserve, therefore, our full attention.

Dr. Mantegazza observed that the chewing of a drachm of the leaves of the coca increased salivation, giving at first a somewhat bitter, and afterwards an aromatic taste in the mouth, and a feeling of comfort in the stomach, as after a frugal meal eaten with good appetite. After a second and third dose, a slight burning sensation in the mouth and pharynx, and an increase of thirst, were noticed; digestion seemed to be more rapidly performed, and the feces lost their stercoraceous smell, the peculiar odour of the juice of the coca becoming perceptible in them. On using the coca for several days, the author observed on himself as well as on other individuals a circumscribed erythema, an eruption around the eyelids resembling pityriasis; from time to time a not unpleasant pricking and itching of the skin was felt. An infusion of the leaves, taken internally, was found to increase the frequency of the pulse in a considerable degree. In making observations on the frequency of the pulse, the author was very careful to consider all the conditions which might influence it; he found that the temperature of the air being the same, and the liquids being heated to an equal degree, an infusion of coca will increase the action of the heart four times its normal standard, while cocoa, tea, coffee, and warm water only double it. By taking an infusion prepared from three drachms of the leaves a feverish condition was produced, with increased heat of the skin, palpitation of the heart, seeing of flashes, headache, and vertigo; the pulse rose from seventy to one hundred and thirty-four.

A peculiar roaring noise in the ear, a desire to run about at large, and an apparent enlargement of the intellectual horizon indicated that the specific influence upon the brain had commenced. A peculiar, hardly describable feeling of increased strength, agility, and impulse to exertion follows; it is the first symptom of the intoxication, which is, however, quite different from the exaltation produced by alcoholics. While the latter manifests itself by increased but irregular action of the muscles, the individual intoxicated by coca feels but a gradually augmented vigour, and a desire to spend this newly-acquired strength in active labour. After some time the intellectual sphere participates in this general exaltation, while the sensibility seems to be hardly influenced; the effect is thus quite different from that produced by coffee, and resembles in some degree that of opium. Dr. Mantegazza could, in this excited condition, write with ease and regularity. After he had taken four drachms he was seized with the peculiar feeling of being isolated from the external world, and with an irresistible inclination to gymnastic exercise, so that he who in his normal condition carefully avoided the latter, jumped with ease upon the writing-table without breaking the lamp or other objects upon it. After this a state of torpidity came on, accompanied by a feeling of intense comfort—consciousness being all the time perfectly clear—and by an instinctive wish not to move a limb during the whole day, not even a finger. During this sensation sleeps sets in, attended by odd and rapidly changing dreams; it may last a whole day without leaving a feeling of debility or indisposition of any kind. The author increased the dose to eighteen drachms in one day; his pulse rose in consequence of it to one hundred and thirty-four, and in the moment when delirium was most intense, he described his feelings to several of his colleagues, who observed him, in the following written words: "*Iddio è ingiusto perche ho fatto l' uomo incapace di poter vivere sempre cocheando*" (this is the expression for intoxication by coca). "*Io preferisco una vita di* 10 *anni con coca che un di* 1,000,000 *secoli senza coca.*" After three hours of sleep Dr. Mantegazza recovered completely from this intoxication, and could immediately follow his daily occupation without the least indisposition—on the contrary, even with unusual facility. He had abstained for forty hours from food of any kind, and the meals then taken were very well digested. From this fact, the author finds it explainable that the Indians employed as carriers of the mail are able to do without food for three to four days, provided they are sufficiently supplied with coca.

From these experiments made repeatedly on himself, and on other individuals, Dr. Mantegazza draws the following conclusions:—

1. The leaves of the coca, chewed or taken in a weak infusion, have a stimulating effect upon the nerves of the stomach, and thereby facilitate digestion very much. 2. In a large dose coca increases the animal heat and augments the frequency of the pulse, and consequently of respiration. 3. In a medium dose, three to four drachms, it excites the nervous system in such a manner that the movements of the muscles are made with greater ease—then it produces a calming effect. 4. Used in a large dose it causes delirium, hallucinations, and, finally, congestion of the brain.

The most prominent property of coca, which is hardly to be found in any other remedy, consists in the exalting effect it produces, calling out the power of the organism without leaving afterwards any sign of debility. The coca is in this respect one of the most powerful nervines and analeptics. These experiments, as well as the circumstance that the natives have used the coca, from the earliest period, as a remedy in dyspepsia, flatulency, and colic, have induced Dr. Mantegazza, and several of his colleagues in South America and Europe, to employ the leaves of the coca in a variety of cases, partly as masticatory, partly in powder, as infusion, as alcoholico-aqueous extract in the dose of ten to fifteen grains in pills, and as clyster. Dr. Mantegazza has used coca with most excellent results in dyspepsia, gastralgia, and enteralgia; he employed it not less frequently in cases of great debility following typhus fever, scurvy, anæmic conditions, etc., and in hysteria and hypochondriasis, even if the latter had increased to weariness of life. The coca might also be employed with great benefit in mental diseases where some physicians prescribe opium. Of its sedative effect in spinal irritation, idiopathic convulsions, nervous erethism, the author has fully convinced

himself. He proposes its use in the highest dose in cases of hydrophobia and tetanus. It is a popular opinion that the coca is a reliable aphrodisiac; the author has, however, observed only two cases in which a decided influence upon the sexual system was perceived.

Dr. Mantegazza, finally, recommends this remarkable plant, which could be easily introduced into trade, to the profession for further physiological and therapeutical experiments, and adds the full history of eighteen cases by which the medicinal virtues of the remedy are proved to satisfaction.—*Pharmaceutical Journal*, June, 1860, from *Œsterreichische für Praktische Heilkunde*, Nov. 1859.

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5. *Prophylamine, a New Remedy for Rheumatism.*—Dr. AWENARIUS, of St. Petersburg, is the first who has used this substance in medicine. In the space of two years, from 1854 to 1856, he has treated successfully more than 250 patients suffering from acute or chronic rheumatism. He affirms that pain and fever had in every case disappeared the day after the administration of the remedy.

He administered it in the following manner: Propylamine, 20 drops; distilled water, ℥vj. Add, if necessary, oleosaccharum of mentha piper. ʒij. Dose—a teaspoonful every other hour.

The employment of propylamine becoming more and more common in America, Mr. W. Procter has considered it necessary that apothecaries should study the properties of this substance and the mode of preparation. Propylamine was discovered by Wertheim in 1850. It can be artificially obtained by acting on the iodide of propylene with ammonia; naturally, by extracting it from the substances in which it is contained. It is met with in the flower of Cratœgus oxyacantha, in the fruits of Sorbus aucuparia, and in the Chenopodium vulgare; but it is in greatest abundance and most easily got in herring brine, where it is combined with an acid, from which it may be separated by distillation with potass.

It is a colourless, transparent liquid, with a strong ammoniacal odour. It dissolves in water; and presents, even in a weak solution, a strong alkaline reaction. It combines with acids, and forms crystallizable salts. Like ammonia, it produces white fumes when in contact with hydrochloric acid. Its composition is C^6H^9N, and is represented by one equivalent of propylene and one equivalent of ammonia, $C^6H^6 + NH^3$.

Propylamine is prepared by introducing into a retort a certain proportion of herring brine, with which a sufficient quantity of potass is mixed to render the liquid strongly alkaline; and adapting a condenser, containing very cold water, it is heated, and distillation continued so long as the liquid which passes exhales the odour of herring. The water of the condenser contains at once ammonia and propylamine, is saturated by hydrochloric acid, and evaporated to dryness at a mild heat. The crystalline mass is then dissolved, a solution of the hydrochlorate of propylamine is made, which leaves the hydrochlorate of ammonia. To extract the propylamine from its hydrochlorate, the solution is treated by hydrate of lime; but the greatest caution is necessary here to cool and condense the vapours, which are disengaged in great abundance even before the application of heat. If propylamine is to be extracted from the ergot of rye, it is necessary to prepare the extract of the substance known under the name of ergotine, and to mix with this solution an aqueous solution of caustic potass; the mixture should be distilled with caution, and received in a condenser containing water acidulated with hydrochloric acid.—*Edin. Med. Journ.*, June, 1860, from *Gaz. des Hôpitaux*, April, 1860.

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6. *Therapeutical Effects of Bromide of Potassium.*—Dr. PFEIFFER has confirmed by his researches the opinions of other physicians as to the sedative effects of bromide of potassium over the generative organs; he has found that the salt possesses a decided power of modifying abnormal erections and diminishing the frequency of seminal discharges. He has arrived at the conclusion that bromide of potassium exercises a special influence over the muscular part of the genito-urinary apparatus, and at the same time induces a characteristic modification of the secreting function of these organs. Dr. Pfeiffer has admin-

istered it also with success in neuralgia of the neck of the bladder. He commences with the dosé of half a centigramme every day, and increases it gradually up to two or three grammes a day.—*Brit. & For. Med.-Chir. Rev.*, July, 1860, from *L'Union Médicale*, Aug. 30, 1859.

7. *On the Use of Sarsaparilla in Syphilitic Diseases.*—Prof. Sigmund, of Vienna, proposed to himself to examine the properties of sarsaparilla when used alone, and for this purpose he selected the best sarsaparilla root, and administered a portion of a freshly-made and strong decoction to the patients every day, their diet at the same time being carefully regulated. The only remarkable effect of the drug was a moderate excitement of diuresis, and occasionally a slight discharge from the bowels (which might perhaps be attributed to other causes), but no other disturbance of any organ or function could be discovered. The patients were from eighteen to forty years of age, were kept quiet in bed, at a uniform temperature, and were free from scrofulous or other wasting disease. The sarsaparilla was administered both in the primary and secondary forms of syphilitic disease, and the following is an abstract of the results: 1. *In simple recent gonorrhœa:* seven cases exhibited a cure in no case, nor was any one of them made worse; but the symptoms diminished as they would have done under any ordinary expectant treatment. 2. *In chronic gleet*, induced by swelling of the prostate gland and consecutive catarrh of the bladder: four cases exhibited no result whatever. 3. *In simple primary syphilitic sores:* nine cases were observed. The local treatment consisted in daily cleansing the sores, cauterization with nitrate of silver, or sulphate of copper, or corrosive sublimate, and dressings with weak solutions of the latter salt. The disappearance of the discharge, and the formation of a clean suppurating surface and gradual cicatrization, followed in six cases in precisely the same manner and at the same period as they would have done in the absence of all internal treatment. 4. *In indurated sores*, the existence of which had not dated beyond five weeks: there were 14 cases, and the local treatment consisted of daily cleansing, and dressings containing white or red precipitate, or iodine with iodide of potassium. There was a slow formation of scars, like flat, hard nodes, while the glands in the vicinity, as well as those at a greater distance, became hard and swollen, and in nine cases during the treatment spots developed themselves on the skin. 5. *In papular syphilitic eruptions, scattered over the skin:* four cases, which had been subjected to no medical treatment, were now treated continuously for thirty days, during which the original papules continued, and others more numerous were produced; here and there one of them shrivelled up and formed little scales upon the cuticle, and larger ones followed after. 6. *In papular syphilitic eruptions, grouped in circles or disks:* four cases had been previously treated with iodide of potassium for five or six weeks, and they were now treated for thirty days without any result. 7. *In secondary ulcers of the skin and in periostitis*, the use of sarsaparilla appeared to produce no effect in addition to that which might be attributed to local treatment with mercury or iodine.

Thus it seemed established that sarsaparilla, used by itself, does not exercise the slightest perceptible influence on the course and termination of syphilitic diseases, and Dr. Sigmund therefore ceased entirely to employ it alone in any form of syphilis.

Cases treated with German drinks, in which sarsaparilla is made to enter as an essential constituent, gave the following results, in the hands of Dr. Sigmund. The preparation employed was Zittmann's decoction, prepared according to the Prussian Pharmacopœia.

1. *In secondary syphilis*, the cases which had not been treated at all previously, exhibited no deviation from the ordinary course as long as the decoction alone was employed; upwards of a hundred such cases were observed. More than half of the patients bore the purgative effects very badly, and suffered from constant sleeplessness and obstinate discharge from the intestines, while some actually became emaciated.

2. *In secondary syphilis*, which had been previously treated by mercury or iodine, or both combined, but without success, and in which the cases presented relapses, papular or pustular eruptions, squamous affections, ulcers of the skin and

mucous membrane, disease of bones, &c.; in such cases, the use of the decoction alone generally diminished the symptoms, and its continued administration in certain instances effected a cure. In all such cases, copious discharges from the intestines and bladder and abundant perspiration were the immediate results of the treatment, and whenever these results failed to ensue, the cure was not effected. Since sarsaparilla employed alone does not produce the effects just described, the inference is, that the results must be attributed to the other ingredient present in the decoction, and therefore the sarsaparilla was omitted and a decoction prepared from the other constituents, and this latter afforded the same results under the same circumstances, even when the sarsaparilla was quite pure, and not mixed, as is often the case, with bardana, astragalus, inula, &c. The decoction of Zittmann is well known to contain a considerable quantity of antimony and mercury, and the operation of this preparation is accounted for by the presence of these minerals.

The conclusion to be drawn from the above cases is, that the use of sarsaparilla alone in gonorrhœal discharges, and in primary and secondary forms of syphilis, effects no material change, and that the activity of the decoctions which contain sarsaparilla cannot be referred to that root as one of their essential constituents.—*Brit. & For. Med.-Chir. Rev.*, July, 1860, from *Zeitschrift der Gesellschaft der Aerzte zu Wein*, Jan. 2, 1860.

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8. *Iodide of Ammonium in Constitutional Syphilis.*—M. GAMBERINI, of Bologna, has, from an experience of fourteen cases, arrived at the following conclusions regarding the use of iodide of ammonium in constitutional syphilis.

Iodide of ammonium is indicated in all cases where the iodides of potassium and sodium are employed, and produces a rapid cure. In syphilitic cases, the following results were obtained: five were cured in a fortnight, three in three weeks, five in a month, and one in five weeks. In the last case, the medicine was not well tolerated, and had to be given in small doses.

The dose is from two to sixteen grains daily; the last named quantity is but rarely required. Intolerance is an exceptional occurrence. Externally, iodide of ammonium has been usefully employed in frictions (three grains to an ounce of olive oil), in cases of nocturnal syphilitic pains of the muscles or joints.

Intolerance of the medicine is denoted by a burning sensation in the throat and heat in the stomach; these rapidly cease when the medicine is suspended for a day or two.

M. Gamberini states that he has removed, by means of iodide of ammonium, the indurations following the cicatrization of chancre, and the enlargements of inguinal glands. The other syphilitic affections in which he has employed it successfully, are, astralgia, rheumatic pains, periostoses, and enlargement of the cervical glands.

M. Gamberini states that iodide of ammonium possesses the following advantages over the analogous salt of sodium: 1. Its action in attaining the same therapeutic object is more rapid; 2. A much smaller dose is required.—*Bulletino delle Scienze Mediche;* and *Gazette Hebdomadaire*, June 1, 1860.

The conclusions at which M. Gamberini has arrived with respect to the iodide of ammonium agree very closely with those stated by Dr. Richardson in a communication to the Medical Society of London.—*British Medical Journal*, June 30, 1860.

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9. *Stearate of Iron.*—Dr. CALVI states, in the *Union Médicale*, for May 5th, that M. Ricord has successfully employed a plaster of stearate of iron as a dressing for phagedænic ulcers of the thighs in a syphilitic patient, which had resisted all previous treatment. A comparative trial was made with this preparation and coal tar; and the former was found to be by far the most efficacious.

Stearate of iron is made in the following way: Take of sulphate of iron, one part; soap, two parts. Dissolve the sulphate of iron and the soap in water separately. On adding the solutions to each other, a greenish-white precipitate is obtained; this is dried, and melted at a temperature of from 175° to 190°; essence of lavender (40 per cent.) is then added, and the whole is stirred until it cools. A plaster can be formed by gently melting it and spreading it on linen.

10. *Administration of Cod-Liver Oil with Bread.*—M. Bassie has invented a method of administering cod-liver oil with bread, which he calls, "huile de foie de morue panée," and which is prepared in the following manner: The bread is broken in pieces, and roasted at a moderate heat, and then thrown into a tinned vessel with some water, so as to obtain a decoction; it is then passed through a straining cloth under gentle pressure, and the strained liquid is exposed to a gentle heat until it has assumed a gelatinous consistence. White sugar and isinglass are then added, and the mixture is withdrawn from the fire and allowed to cool, when a little tartaric acid is carefully mixed with it. The bread jelly thus prepared is afterwards mixed with cod-liver oil, and flavoured with canella and essence of lemons. The white oil, and of the best quality, is to be preferred for this preparation.—*Brit. & For. Med.-Chir. Rev.*, July, 1860, from *L'Union Méd.*, June 15, 1859.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

11. *On the Intermittent Fevers of the West Indies, and on the Action of Quinia as a Specific in their Treatment.*—A paper, by Mr. Hugh Croskery, on this subject, was read before the Royal Medical and Chirurgical Society June 26th, 1860.

The object of the author in this communication was to point out the necessity of a sedative treatment during the hot stage, and free purgation before the administration of the specific. The mixture he had found most beneficial was composed as follows: Solution of acetate of ammonia, two ounces; spirit of nitrous ether, and spirit of juniper, of each half an ounce; potassio-tartrate of antimony, four grains; tincture of hyoscyamus, two drachms; tincture of opium, one drachm; to twelve ounces of camphor mixture. Of this a tablespoonful is given to an adult every half hour until diaphoresis comes on. The mixture may be either preceded or followed by ten grains of calomel, with a saline aperient a few hours later. He considered that the action of the mercurial purgative tended to assist the subsequent action of the quinia. He condemned the administration of quinine in large doses, and stated that he had obtained the most satisfactory results from its employment in small doses at repeated intervals. He believed that to administer it in any form during the paroxysm was injurious, and that the exhibition of large doses at this period of the disease was fraught with the greatest danger. The formula adopted by the author for its administration is the following: Disulphate of quinia, forty grains; tincture of oranges, half an ounce; dilute sulphuric acid, one drachm; to ten ounces of water. Of this mixture he gives to an adult a tablespoonful every hour during the intermission until singing in the ears or the presence of headache shows that the system is saturated by the remedy, when it is to be repeated at longer intervals, and even continued in small quantity for some days, so long as any unpleasant feelings are experienced at the time when the paroxysm ought to occur. He has found that in this manner from forty to sixty grains may be given before the recurrence of the attack, and that in the majority of instances the next paroxysm is either entirely prevented or is very much modified. One large dose of the salt very often produces disagreeable head symptoms, which prevent its repetition so as to get the system saturated with the remedy sufficiently early to obviate the return of the hot stage. In cases of severe quotidian he had occasionally given with benefit ten grains of quinine at once, along with the calomel; this, however, he considered rather as the exception. The paper concluded with the narration of five cases illustrative of the author's method of treatment. Of these cases, four were adults, and one a child nine years of age. In most of these the attack was quite recent, but in one case it had continued six weeks. The author remarked that in such circumstances the prolonged use of quinine during convalescence was essential to ultimate recovery.

12. *The Morbid Anatomy, Pathology, and Determining Cause of Emphysema of the Lungs.*—Some observations on this subject, by Mr. A. T. W. WATERS, were lately (June 26th, 1860) read before the Royal Medical and Chirurgical Society.

Although much has been written on the subject of pulmonary emphysema, there are yet many points in connection with it which require investigation. There is, perhaps, no disease the symptoms and physical signs of which are so readily explicable, from a knowledge of the structural changes by which it is accompanied, as this particular affection, and hence an acquaintance with the minute anatomy of the healthy lung-tissue becomes of the utmost importance, in order fully to appreciate the morbid changes which take place. (Here follows a brief description of the arrangement of the "ultimate pulmonary tissue.") Pulmonary emphysema is of two kinds—1. Interlobular emphysema. 2. Vesicular emphysema. The second, or vesicular, is by far the most important, and will be alone considered. It exists in three forms, differing only in the extent to which they involve the lung. 1. *Partial Lobular Emphysema*, involving a few air-sacs, or at most only a single lobulette. This is not often seen as an independent affection, but in lungs which are the seat of the second form it occasionally exists in small patches along the margins of the lobes. These patches resemble small vesicles, and when numerous have somewhat the appearance of a row of beads. 2. *Lobular Emphysema*.—This is the form most frequently met with. It involves one or more lobules in different parts of the lung, and is especially found along the margins of the base, the anterior border, and at the apex. It frequently exists in connection with phthisis, and occasionally with pneumonia. In this form it is easy to trace the divisions of the lung; the boundary walls of the lobules have not usually given way, and generally no interlobular emphysema exists. The air-sacs of a lobule are not necessarily all equally dilated, those at the circumference being most so. The emphysematous lobules may be seen projecting above the level of the lung, and in some instances they become developed into "appendages." 3. *Lobar Emphysema*.—This form involves the whole of a lobe, or an entire lung, or very frequently both lungs. It constitutes a very formidable affection, and often destroys life at an early period. The lung is much increased in size. The outlines of the lobules frequently cannot be distinctly seen, in consequence of the rupture of their boundary walls, and the production of interlobular emphysema. In investigating the morbid anatomy of emphysematous lungs, the same methods of preparation were used by the author as had been previously employed in the examination of the healthy organ—viz., injection, inflation, and desiccation. With regard to the structural changes which take place in the disease, we recognize, in the early stages, a simple dilatation of the air-sacs, and a diminution in the height of the alveolar partitions. A further dilatation takes place, with more or less complete obliteration of the alveolar septa. This distension produces a divergence of the elastic fibres of the air-sacs, and is soon followed by a perforation of the walls themselves, so as to give in the advanced stage a perfectly cribriform appearance to the membrane of which the walls are formed. This is followed by rupture of the elastic fibres, a further distension of the air-sacs, with a general breaking down of their walls, so that in the most advanced stages of the disease large cavities are found, traversed in all directions by membranous shreds or fibrous cords. The inner surface of the emphysematous lung-tissue presents the same microscopic appearances as that of the healthy tissue. In some lungs in which lobular emphysema existed, the air-sacs were found much distended, but no perforations existed; while in others, and especially where the disease was of the lobar kind, extensive perforations were found, with not more, and in some instances less, dilatation than in the former. This would seem to indicate some degeneration of tissue in the one case, which might be absent in the other. The condition of the bloodvessels explains the anæmic appearance of the emphysematous lung. In the earlier stages the capillaries of the pulmonary plexus are wider apart than in health; and as the walls of the air-sacs are perforated, and the latter more distended, the capillaries become ruptured and absorbed. The vascularity of the lung, in a condition of advanced emphysema, is very slight. The bronchial tubes are usually dilated in old-standing cases of emphysema.

their mucous membrane is pale, and there is increased development of the circular muscular fibres. An important question in connection with the emphysema is, whether the disease is preceded by, or attended with, any degeneration of tissue. With regard to the existence of fatty matter in the emphysematous lung, a considerable number of specimens were examined with great care; and although in one or two instances indications of its presence were found, as a rule it was entirely absent. Dr. Jenner has stated that a fibrous degeneration frequently exists. A number of specimens were examined to ascertain whether any alteration of this kind could be observed in the elastic fibres as compared with those of the healthy lung. The results arrived at on this point were imperfect, and the question is left for future investigation. Some kind of degeneration is believed in many cases to exist. With reference to the determining cause of pulmonary emphysema, the view that the disease is produced by expiratory efforts appears to the author the most tenable. Serious objections seem to present themselves to the theory advocated by Dr. Gairdner, that the disease results from increased distension, during inspiration, of one part of the lung, in order to fill the space previously occupied by a collapsed portion. During inspiration, the chest expands to make room for the dilating lung: air is drawn equally to all parts of the lung, and is not driven by any external force to one part more than to another. It is difficult, therefore, to understand how an excessive quantity of air should find its way to any particular portion. If the chest must reach a certain expansion, it would rather appear that the entire lung would be everywhere slightly dilated, except where collapsed: or else that those parts nearest the collapsed portions would be most distended. Such parts, however, are not the most frequent seats of emphysema. Further, the lungs can undergo very considerable distension without suffering any injury. Although the lungs undergo equable pressure during ordinary expiration, this by no means proves that such is the case during acts of coughing; in fact, the contrary is true, as has been shown by Dr. Jenner. The conformation of the walls of the chest, and of the lungs, seems to render it necessary that the latter should undergo unequal compression during violent expiratory efforts with a partially closed glottis, and that air should be driven first to those parts of the lungs where the walls are least resisting, and secondly to those portions which contain the least volume of air. The least resisting part of the thoracic walls is that which covers the apex of the lung; it consists of a membranous expansion, and plays no active part in the expiratory process. As a fact, we find, in coughing, that the lung bulges into the lower part of the neck. The parts of the lung which contain the least volume of air are the margins. These are out of the direct line of pressure which the lung undergoes in violent expiratory efforts, which are chiefly effected by the abdominal muscles, especially the recti. The contraction of these latter muscles, forcing upwards the abdominal viscera and the diaphragm, produces the greatest amount of compression at the base of each lung; the air is driven upwards in a strong current, which overcomes the current from the other portions, and these, instead of becoming emptied, remain forcibly distended. The phenomena witnessed in M. Groux, probably seen by many of the Fellows present, may be adduced in support of the view that during coughing the lungs become distended in any part where the walls of the chest offer but little resistance. Lastly, the cases recorded in a paper written by M. Guillot—in which what he describes as sub-pleural emphysema was found after death, preceded by long-continued and violent spasmodic cough—may be cited in favour of the expiratory theory of the production of the disease, a theory to which anatomical arrangement and physiological phenomena seem to point.—*Med. Times and Gaz.*, July 28, 1860.

13. *Treatment of Pneumonia by Veratria.*—In a work lately published, Prof. Vogt, of Berne, gives the results of his experience in the treatment of pneumonia by veratria. The number of cases treated from the beginning of 1857 to the end of March, 1859, was 56. Of these, 29 were cases treated in the first stage, 2 only being fatal. In the remaining 27 cases the properties of veratria were very strongly marked. On the fifth day of the disease the fever had generally disappeared, and the patients were becoming convalescent. Only in a small number of

cases, towards the fifth or sixth day, there was a fresh exacerbation, but all the phenomena disappeared more rapidly than before by a fresh administration or a larger dose of veratria. In no case had the veratria any other effect upon the local lesion than that of suspending its progress as soon as the febrile excitement was arrested. In a second class of cases there were 22 in which the disease had passed the first period and presented itself with a fresh exacerbation; of these, two died. Considering this treatment in a general manner, M. Vogt observes, that when applied to well-developed and serious cases of pneumonia, veratria has afforded very satisfactory results, as there were only 8 fatal cases out of 100; and his opinion is that the use of this drug ought not only to be ranked upon an equality with other approved methods of treatment, but that it is actually superior to them. The objection has been raised against the use of veratria that it often readily produces vomiting, and it has also been alleged that its action often becomes excessive. But M. Vogt does not consider these objections as having much weight; for as to its emetic powers, it possesses them in common with tartarized antimony, and ordinary experience proves the utility of vomiting in a number of affections of an inflammatory nature. As to the activity of its operation, it may be moderated by regulating the dose, and by carefully watching the effects produced, as in the case of other medicines. In small doses it has no action on the pulse, and in sufficient doses it never acts excessively, according to M. Vogt, when it is administered with suitable precautions. The rules laid down by M. Vogt are, to give the veratria in a rather large dose—namely, 5 milligrammes (a milligramme is .0154 of an English grain) every two or three hours, until the production of vomiting or the diminution of the pulse. The veratria is generally administered in pills; but some persons are unable to swallow pills, and the alkaloid must then be given in solution. The necessary dose for procuring the desired effect is from 25 to 30 milligrammes; but there are persons of less sensitive organization, principally men, in whom as much as 5 to 6 centigrammes (a centigramme is .1543 of an English grain) may be given in twenty-four hours. If the stomach is too irritable, the dose is reduced, and the veratria is administered in an effervescing draught or with a little opium; the action of the pulse is more slow in developing itself, but it is nevertheless observed at last.—*Brit. & For. Med.-Chir. Rev.*, July, 1860, from *Bull. Gén. de Thérap.*, Jan. 30, 1860.

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14. *Idiopathic Glossitis.*—Dr. T. G. GEOGHEGAN relates (*Dublin Medical Press*, July 25, 1860) six cases of idiopathic glossitis as a contribution to the clinical history of this disease. The facts presented by these cases, Dr. G. observes, warrant the following inferences:—

"That the disease usually attacks young and previously healthy persons.

"That its immediate exciting cause is either exposure to wet and cold, or the presence of some local source of irritation in the organ, as a blister or excoriation, or the use of caustic applications, and that it is quite independent of the previous use of mercury. The much greater frequency of the disease in males, and the known injurious action of tobacco on the mouth, salivary and buccal glands, and on the fauces, together with the fact that cancer of the tongue not uncommonly attacks the inveterate smoker, renders it not improbable that the pestilent habit of smoking at least predisposes to this affection.

"That the disease is characterized by well-marked and urgent symptoms, which, if neglected, rapidly assume a formidable and even dangerous apect, their individual and collective nature being sufficiently attested by the details already given.

"That the inflammation usually attacks one side of the organ only (as noted by Graves), although the rest of the tongue may be swollen from serous infiltration and congestion.

"That abscess in the capsule of the sublingual gland or in the adjacent cellular structure, is a usual consequence of the disease. A purulent depot in the muscular substance of the tongue is less common.

"That complete recovery does not secure the patient from a second attack after a comparatively short interval, which may be more or less severe than the original one.

"That the disease requires to be met by prompt and decisive measures, of which the local are by far the more important.

"That local abstraction of blood by leeches applied directly to the tongue, and by incisions (particularly the former), is highly beneficial,[1] and should be resorted to without delay. Incision is further often requisite for the discharge of matter. When these measures (assisted by such constitutional means as each case may suggest) do not afford progressive relief, the formation of matter may be suspected, and should lead to a renewed careful examination of the tongue and its appendages in search of a depot, which, when discovered, should be evacuated. In making incisions on the dorsum, either as a means of abstracting blood or of discharging pus, care should be taken to keep the surfaces of the knife parallel to the median plane of the tongue, and not to direct its edge at all outwards. The incisions should be parallel to the raphe, and not transversely (as in an instance related by Graves), for obvious anatomical reasons. Emollient poultices beneath the jaw are useful; but the employment of mercury, as resorted to in a recorded case, is strongly to be deprecated as unnecessary if not injurious.

"When decided measures have been resorted to, the acute stage of the disease is short. The average duration of the cases here recorded, reckoned from the period of its full development to that of perfect convalescence, was five days. It will, no doubt, have been observed that in one of the cases under my care venesection was administered. This was the first example of the disease which had fallen under my notice, and probably the above measure might have been beneficially replaced by a larger use of leeches. The patient, however, was of plethoric habit, and had an excited circulation. In these days of sudden revulsions of opinion, and since brandy (divorced from its former unprofessional partner, common salt, and now happily united to beef tea) is accounted as a panacea, an apology is sometimes expected for the use of the lancet. If the practitioner is prudent, he will, however, in this, as in all other cases, use his discretion, 'nullius addictus jurare in verba magistri.'

"The affections with which acute idiopathic inflammation of the tongue is most liable to be confounded by an incautious observer are—acute cynanche tonsillaris, the severer forms of mercurial ptyalism, and a peculiar form of alveolar abscess, or aggravated gum-boil, which appears to me not to have been noticed by surgical authorities. The dysphagia, salivation, and fever of the first are common to it and to glossitis; the swelling, however, of the body and edges of the tongue in the latter, the infiltrated condition of the mucous crest beneath, and the altogether negative evidence afforded by the fauces, when visible, are sufficiently distinctive. If the surgeon cannot see the interior of the throat, he will be assisted by the prominence under the finger, and tenderness at the back of the dorsal aspect of the tongue, and sometimes beneath it, and by the swelling below the chin. As regards ptyalism, the condition of the gums and the evidence that mercury has not been administered (when forthcoming), and the local tenderness on pressure, are the most decisive. Abscess also, according to my experience, does not result from mercurial action, whilst ulceration is common. The distinction between mercurial and other affections of the mouth, based on an intrinsic character of the saliva, as proposed by Dr. Davidson, may possibly hereafter prove to be available in inflammation of the tongue. I have more than once verified the absence of indications of sulpho-cyanogen in the saliva in mercurial ptyalism. It remains, however, to be shown that certain diseases do not also cause suppression of that constituent. I regret that the matter escaped my recollection at the time the above cases were observed. It is a subject worthy of the notice of future inquirers.

"The alveolar abscess above noticed, to some extent simulates glossitis. This affection I have found to depend usually on a carious condition of the lower dens

[1] I find that leeching has been also insisted on by Dr. Graves. The late Sir Philip Crampton recommended the application of leeches directly to the fauces in cynanche; but the practice does not seem to have been extensively adopted. Numerous punctures of the tonsils, &c., rapidly made with the point of a bistoury, and followed by warm gargling, I have found to give relief in these affections.

sapientiæ, with acute periostitis of its root, more rarely on inflammation of the gum still covering this tooth at the time when its evolution has made some progress. The first named affection is very painful. In it, as in glossitis, there is difficulty in opening the mouth and in protruding the tongue, the mucous crest leading to the sublingual gland is equally swollen, red, and infiltrated, there is difficulty of swallowing and flow of saliva from the mouth, with pain and tenderness about the angle of the jaw. The diagnostic sign which I have found decisive is—the severe pain produced by pressure when the finger, by some manœuvring, is introduced and pressed against the lingual aspect of the jaw at a point corresponding to the fang of the suspected tooth, and to the extremity of the mylo-hyoid ridge, where a yielding is experienced. The absence of any material swelling of the body of the tongue, or of tenderness there on pressure, will further obviate any likelihood of mistake. Having noticed this affection, I may state that its treatment is equally simple and effective—the opening of the abscess with the point of a bistoury directed carefully outwards and downwards, whilst the subsequent extraction of the offending tooth, will prevent a recurrence of the mischief. Leeches or other measures directed to arrest of sublingual inflammation are quite superfluous. The eruption of the dens sapientiæ, it may, in passing, be also observed, is often attended by suppuration between the superincumbent gum and the crown of the tooth; it is a painful affection, and sometimes tedious, and not uncommonly mistaken for rheumatic trismus.

"In a late case in which the system refused ptyalism, under mercury in course of administration for secondary syphilis, the patient, who had absented himself for some days, complaining that his mouth was now very sore, it was supposed that the mineral had taken effect. I found that he was labouring under suppurating gums, depending on the cause now described. The rest of the gums were healthy. Such examples enforce the necessity of actual inspection of the parts. The difficulty of opening the mouth, sometimes amounting almost to impossibility, is the result of the inflamed condition of the mucous membrane, where it covers the base of the adjacent coronoid process. I have found division of the gum down to the crown of the tooth with a sharp gum lancet to be a prompt and perfectly effectual remedy.

"Observation leads me to believe that idiopathic inflammation of the tongue is sometimes essentially of a *chronic* character. Two cases have presented themselves which appear to me to have been examples of that affection. The general appearance of the tongue has been similar. There was the same enlargement, though in rather a less degree; the same obtuseness and translucency of the edges; a like absence of pain, for even in *acute* glossitis there is no pain when unprovoked by pressure, and then only at the points where suppuration is to be apprehended. In the chronic form there is *neither* pain nor tenderness. The disease[1] is of slow progress, obscure origin, and, according to my experience, little amenable to treatment. I have known mercury to have been used without advantage, and have myself tried leeches, scarifications, and iodide of potassium, unsuccessfully. One of these cases occurred on the person of a man above the middle age, and no cause could be assigned for its origin. The other, in that of a child of a feeble constitution. In the former, the volume of the tongue seemed to cause difficulty of breathing. The child sank from collateral disease. In this latter case the affected organ was, perhaps, a little improved by iron, cod-liver oil, iodine, and good diet.

"There is yet another affection which possibly originates in chronic inflammation of the muscular or interstitial textures of the tongue, although I do not offer a positive opinion on that subject. It consists in the formation of isolated, firm, and rounded tubercles, about the size of a pea, not visible at the surface, but readily perceptible by grasping the organ at various points. The disease is painless, slow of progress, and has been occasionally confounded, even by experienced surgeons, with cancer. I have seen it attended by that milk-white opaque condition of the lingual epithelium, which appears to me not an unusual

[1] The case described by Dr. Clanny under the name of protrusion of the tongue in a child, seems to have been of a different kind. It was cured by returning the tongue within the mouth.

precursor of epithelial cancer of the organ. I have found it relieved, but not cured, by iodide of potassium."

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15. *Treatment of Hydatid Tumours of the Liver.*—Dr. Geo. Budd observes (*Med. Times and Gaz.*, May 19, 1860) that "an hydatid tumour of the liver, though at first it grows slowly, causes little or no pain, and excites no constitutional disturbance, constitutes, nevertheless, a very dangerous disease.

"Firstly. The tumour often continues to grow, with varying rapidity at different times, until at length it attains such dimensions as to cause great distress, and even to destroy life, from its mere bulk. I have met with two instances in which an hydatid tumour in the liver proved fatal in this way.

"Secondly. The tumour, when it has attained a certain size, may be ruptured by accidental injury, and the hydatid liquid be effused into the peritoneal sac—in which case it excites peritonitis, that proves very speedily fatal; or,

"Thirdly. The tumour may become adherent to some contiguous part, and open of itself, discharging its contents, as the case may be, through the abdominal parietes, through the lung, or into some part of the intestinal canal. In either case, a long and severe illness, with great danger to life, is the result.

"Fourthly. When the tumour is large, and has attained maturity, suppurative inflammation is apt to be set up within it, from conditions belonging to its nature, and a large hydatid tumour is thus converted into a large abscess with a thickened, and, it may be, degenerated sac—an abscess the danger of which is still further increased by the circumstance, that the sac likewise contains floating hydatids, and is lined by an hydatid membrane, which may prevent the free escape of the matter.

"Fifthly. When the tumour has attained maturity, it sometimes, there is reason to believe, throws off from its outer surface germs, which may become developed into fresh hydatid tumours.

"In one of these ways the disease, which may cause no illness and but little inconvenience at first, generally becomes after a time the source of terrible suffering and death.

"Sometimes, without special medical treatment, the hydatids lose their vitality. The sac that contains them then shrinks, its inner surface secretes a matter, looking like glazier's putty, in which the hydatids or their remains are embedded, and the tumour ceases to be a source of further danger. The hydatid sac, more or less reduced in bulk, remains, but the dead hydatids do not undergo putrefactive changes and excite suppurative inflammation, as dead animal matter shut up in the body usually does, and the tumour subsequently causes no further mischief than that which arises from its bulk.

"The object of medical treatment should be to produce by art and at will those changes in the tumour which sometimes occur without our special interference. This object is probably attainable by medicine. It has been supposed that iodide of potassium or common salt may destroy the vitality of the hydatids, and thus arrest the growth of the tumour; but in the great majority of cases, certainly, these medicines fail to produce this effect. The vitality of the hydatids may be destroyed, and the growth of the tumour arrested by simply withdrawing from the sac the hydatid liquor, leaving still within it the hydatid membranes.

"These membranes, and the animalcules of which they are the nidus, lose their vitality when deprived of the liquor from which they derive their sustenance; but if no air be admitted into the sac they do not undergo putrefactive changes. The tumour shrinks to a certain degree, and is no longer a source of danger.

"The circumstance that the dead hydatids do not putrefy, provided air or other decomposing substances be not introduced into the sac from without, is perhaps attributable to the large quantity of common salt which the hydatid liquor contains, and with which the hydatid's membranes are, as it were, imbrined.

"Numerous cases have been recorded in which hydatid tumours have been successfully tapped, so as to evacuate simply the hydatid liquor, by the common trocar and canula, and a prompt cure of the malady has resulted. But in operating by the common trocar and canula there is great danger.

"Before the tumour has become adherent to the abdominal parietes—and it seldom is adherent until it has existed long and grown large—all the liquid

within it may not be forced by the elasticity of the sac through the canula, and, when the canula is withdrawn, some of the liquid may escape into the peritoneal sac, in which case, as when an hydatid tumour is accidentally ruptured, it excites general peritonitis that proves very speedily fatal.

"When the tumour is adherent to the abdominal parietes, this danger no longer exists; but there is another source of peril. The tumour is then commonly very large and old; the walls of the sac have lost much of the elasticity which they originally possessed; and the tumour can only be emptied of its contents by the admission of air, which excites suppurative inflammation within the sac, and thus converts the tumour into a large abscess, which, from the state of its walls, can only close up very slowly. The strength of the patient is reduced, and his life imperilled by the protracted suppuration. In either case the danger of tapping may be obviated by withdrawing the hydatid liquor, which is as limpid as pure water, through a fine *exploring* trocar, by means of an exhausting-pump. The portion of the canula that enters the sac should be perforated by fine holes, so that, if its lower end should become blocked up by a floating hydatid, the liquid may continue to escape.

"By the suction of the pump, the tumour may be emptied of its liquid, and, even if it should not be completely emptied and should not be adherent to the abdominal parietes, the aperture made by the trocar will, in consequence of its minuteness and the contracted state of the sac, be completely closed when the canula is withdrawn, and none of the hydatid liquid will escape into the sac of the peritoneum.

"An instrument well adapted to the purpose is Weiss' double-acting stomach-pump syringe, which may be connected with the canula, when the trocar is withdrawn, by means of a vulcanized tube having brass ends, one end fitting into the outer extremity of the canula, the other for attachment to the piston of the pump. As an additional precaution against the admission of air into the sac, the brass end of the tube that fits into the canula may be furnished with a valve to be kept open only during the suction of the pump. An instrument of this kind was recommended by Dr. Bowditch, of Boston, in America, to abstract the fluid from the chest in cases of empyema; and last year one was made for me, for this purpose, by Weiss, according to Dr. Bowditch's plan.

"As in all cases of tapping where it is desirable to prevent the admission of air, the trocar should be inserted downwards, that is, the outer extremity of the instrument should be kept at a higher level than that in the body. The liquid will then rise in the canula, expelling the air from it; whereas, if this position be reversed, and the outer end of the instrument be lower than the inner end—air, which by the law of gravitation ascends in water, may pass up through the canula into the cavity which it is intended to empty."

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16. *Pathology and Treatment of Chloroanæmia.*—Dr. EISENMANN, from an extensive observation of this affection, concludes that it is especially developed under the influence of medical constitutions which predispose to nervous affections. It is especially met with at a time of life when all kinds of neuroses are very prevalent, its appearance being ushered in by nervous phenomena, at a period when as yet the blood has not undergone the slightest change. Such change may even be absent when the disease has reached its full development, nervous symptoms being observable, however, during its entire course. It is curable by agents which exert a special action on the spinal marrow; and when left to itself, it often gives rise to chronic, or even fatal, spinal affections. All these considerations lead the author to the final conclusion that chlorosis is a primary nervous affection, the change in the blood being a secondary phenomenon, due to morbid innervation. Guided by these views he treated several cases of the complaint by means of tincture of St. Ignatius' bean, with great success. Wishing, however, to effect a more prompt recovery than that which takes place when the bean alone is given, he associated it with ferruginous preparations, adding also rhubarb, on account of the constipation which is usually present. The following is the formula he employs: Powder of St. Ignatius' bean, 1 gr.; lactate of iron, or iron filings, iij. gr.; rhubarb, iii. gr. to iv.; and oleo saccharate of peppermint, iv. gr. This is repeated twice a day. When the stomach

is irritable, the iron is left out. This compound cures far more rapidly and effectually than do mere preparations of iron.—*Med. Times and Gaz.*, July 14, 1860, from *Bull. de Thérap.*, t. lvii.

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17. *Employment of Chloroform internally and externally in the Treatment of Spasmodic Contractions of the Extremities.* By M. Aran.—Spasmodic cramp of the extremities, which is sometimes also named idiopathic contraction, intermittent tetanus or tetanie, is a disease little known in its essential nature. Its appearances are very irregular; sometimes it does not occur for months or years, at other times it spreads, as it were, epidemically. This affection is painful in the highest degree; and, in some cases, is frightful by its extent and severity; it arises either apparently idiopathically, or supervenes on other diseases, without, however, changing in any way their character. Formerly believed by practitioners to depend on some grave lesion of the brain or spinal cord, this disease was treated by the most active measures; in the present day, since the prognosis is known to present usually nothing serious, physicians still have recourse to antiphlogistics, blisters, etc.; but the treatment of the affection yet remains uncertain, and often ineffectual. In an epidemic of these spasms or cramps, formerly observed by the author, he found no treatment at all satisfactory, except the prolonged extension of the contracted limbs, and revulsive applications to the affected muscles. Observing, however, the good effects which had resulted from the inhalations of chloroform, in a case of severe and truly tetanic cramp, as well as from topical applications of chloroform to the limbs in some other cases, and reflecting on the clearly spasmodic nature of the affection, the analogy to rheumatism which it often presents, and the acute pain which accompanies it, M. Aran was led to believe that chloroform might exert a very advantageous influence over these spasmodic contractions, a conjecture of which the following case showed the correctness: D., aged seventeen, shopman to a wine merchant, entered the Hospital St. Antoine on the 12th March. He is of a good constitution, well developed for his age, but of a lymphatic temperament; he has never been ill, but is exposed, by his occupation, to sudden variations of temperature, and for several months past has had his hands continually in water cleaning out bottles. The disease commenced three days before admission, with stiffness in the hands, and, on the following night, the rigidity appeared in the lower limbs. From this time the cramps have never entirely ceased; occasionally the rigidity and pain have diminished; but, from time to time, the stiffness became more marked, and the pains very acute in the limbs. When examined on March 13th, he was seated in bed, complaining of cramps in the upper and lower extremities. In the latter, the foot was forcibly extended, the point strongly depressed, and the toes bent; and this position, exactly the same in both feet, was maintained by the state of contraction of the posterior muscles of the leg, principally the gastrocnemii, which were hard and voluminous. The contraction of these muscles was very difficult to overcome, and returned when the foot was let go after being flexed. In these muscles, as well as in the extensors of the leg, incessant fibrillar contractions were perceived, which gave to the ear the sensation of the rolling noise produced by muscular action. There was no stiffness in the knee-joint, which the patient could flex and extend without difficulty; the movements of the hip-joint were somewhat impeded. In the upper extremities, the hands and forearms were in a state of forced pronation, the hands flexed on the forearms; the thumb adducted under the index, and the fingers bent. The flexor and pronator muscles of the forearm, and the biceps muscles, which were spasmodically stiffened, exhibited also the fibrillar contractions already mentioned. The sensibility was not materially diminished in the upper or lower extremities, although the patient felt a kind of numbness. On the contrary, muscular irritability was greatly increased, and the slightest contact excited and exaggerated the fibrillar contractions. The disease was limited entirely to the four limbs; there is no contraction of the muscles in the neck or chest, and no difficulty of respiration. The patient seemed to suffer severely; the skin was hot, bathed with perspiration; the face anxious; the pulse rather sharp, 84; but the other functions were in good order. The treatment consisted in the application of compresses, soaked with chloroform, to the posterior

muscles of the legs and to the forearms; and a potion, containing about forty drops of chloroform, of which a teaspoonful, to be taken every hour, was ordered, along with beef-tea. The applications of chloroform were followed by immediate relief, aided, doubtless, by the chloroform potion, which caused symptoms of slight intoxication. After two hours, the patient began to recover the power of extending the feet and hands without pain; and, in the evening, when a second application of chloroform to the limbs was made, the cure might be considered complete. The patient passed an excellent night, and, next day, there was apyrexia and complete freedom of movement. The chloroform was continued internally, in diminishing doses, till the 15th; there was no return of the symptoms, and the patient was dismissed in good condition on the 22d. He had the imprudence, however, to resume work, and on the evening of the 24th, the spasms returned, but in a much slighter degree than before. The same treatment subdued this attack without difficulty, and the patient was kept several weeks in hospital by way of precaution. M. Aran is not decided whether the speedy cure, in this case of intense spasmodic contraction, was due to the external or internal administration of the chloroform. In his previous experience he had found that the external application produced excellent effects, but that the amelioration was only momentary, and he is inclined to ascribe the permanent cure to the internal use of the chloroform in sufficient doses. As chloroform exerts a powerful local action, it is necessary to employ a moderate quantity in persons with a delicate skin, and it may even be necessary to dilute it with almond oil or camphorated oil of chamomile. Internally, the chloroform may be given without inconvenience or danger, to the amount of forty to fifty drops, in a potion of gum of four to five ounces, of which a teaspoonful is given every hour, which causes at most only a slight degree of intoxication. The author leaves it to the future to determine whether the internal administration of chloroform is as important in the treatment of spasmodic contractions as analogy had led him to suppose.—*Edin. Med. Journ.*, June, 1860, from *Bull. Gén. de Thérap.*, March, 1860.

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18. *Chloride of Zinc in Diseases of the Skin.*—Dr. VEIEL, of Cannstatt, has employed the chloride of zinc for the last nine years as a caustic whenever it was requisite to destroy morbid growths in the areolar tissue, or to remove abnormal secretions, as happens in different forms of lupus. He therefore employed it for a long time only in the cure of lupus and some allied diseases, such as lepra vulgaris, elephantiasis, and small circumscribed forms of scirrhus; but latterly he has also used it for the purpose of altering the condition of suppurating surfaces, and in chronic ulcers of the legs, chronic eczema and sycosis. Three forms of this salt are in use, namely, the alcoholic solution, the aqueous solution, and the solid cylindrical form. The first consists of equal parts of rectified spirit and chloride of zinc, the second of 10 parts of the chloride, 10 of hydrochloric acid, and 500 of water, and the third is prepared by fusing the chloride, and pouring it into moulds, as in the case of caustic potash. Dr. Veiel selects the solid form when his object is to penetrate as deeply as possible in order to destroy hypertrophic secretions, as happens in inveterate cases of lupus, in which the stick of chloride is used in the same way as caustic potash. The chloride was thus employed with the best results in thirteen well-marked cases of lupus, 1 of the alæ nasi, 6 of the upper lip, 4 on the cheek, and 2 on the ear. The proceeding is as follows: when there are scabs or thick scales, which have already destroyed the epidermis, poultices are used to remove them, but when the epidermis is preserved, it is dissolved by blistering plaster or spirits of ammonia. Then the solid chloride, fixed in a quill and pointed, is pressed deep into the hypertrophied and tuberculous tissue and the structures for 2 or 3 lines around it, until the salt has penetrated all the morbid growths in different directions. Immediately after this operation, the honeycomb-like and perforated surface discharges a dark bloody fluid, succeeded by a brighter-coloured serum, which after a few hours hardens to a smooth and firm scurf. On the third or fourth day, a thin pus is formed on the edge of the scurf, and the removal of this fluid by puncture generally relieves tension. On the sixth or eighth day, the scurf is loosened at the edges, and it may be entirely removed by poultices

continued for several days. It is seldom necessary to use the solid chloride more than three times, but in cases where the diseased structures are very thick, it must be employed much oftener. When the large ulcer is at last free from all swollen prominences, and on a level with the surrounding healthy parts, it should be poulticed for several days, then lightly touched with the alcoholic solution of the chloride every three or four days, and afterwards, when the edges begin to contract, with the watery solution, until a complete cure is effected, which seldom requires more than three or four months.

Besides lupus, there are a great number of skin diseases which are relieved by chloride of zinc. In obstinate eczema, occurring on the limits of the skin and mucous membrane, as on the eyelids, the lips, the labia, and the anus, the spirituous solution affords great relief. In eczema solare and impetiginodes, the daily employment of the aqueous solution is sometimes the only cure. In psoriasis, some indurations are occasionally left, after the cure of the complaint, on the elbows, back, and thigh, but they are easily removed by the alcoholic solution of the chloride, although the scales must first be removed. There is also a form of psoriasis palmaris, with painful warty indurations, which yield to no other means than the solid chloride, after they have been previously raised from their source by a blister. In sycosis and favus, after the beard or hairs are removed, the watery solution is very useful, partly in dissolving the swelling and infiltration of the follicles, partly in removing fungous growths. It is also useful in certain forms of acne, and in a great number of warty circumscribed scirrhous growths on the nose, the cheeks, and the lips.

Dr. Veiel considers that chloride of zinc is especially useful as a caustic, on the following grounds: 1. It enters into combination with all the elements with which it comes into contact, particularly with the proteinaceous matters, which again occasion a caustic effect upon the deep structures, whereby the parts in the immediate vicinity of the cauterized matter contract, and thus the diseased portion is diminished, and the edges of the sound parts approximate. 2. Because the irritation thus excited causes a more rapid formation of pus and dissolution of the scurf, whereby the cure is more rapidly accomplished, and the raw surfaces form better granulations. 3. Because the cicatrization following the peculiar contraction, the attendant destruction of the disease is more complete; and 4. Because the pain of the application, although severe, lasts only a short time, and may be easily moderated by chloroform. Dr. Veiel considers, for various reasons, that chloride of zinc is preferable to the strong acids, caustic potash, nitrate of silver, the preparations of iodine, the chloride of gold, and other caustics. It should be mentioned that as the chloride of zinc in the solid form is remarkably prone to attract moisture, it ought to be kept for use in a well-stopped glass vessel.—*Brit. & For. Med.-Chir. Rev.*, July, 1860, from *Zeitschrift der Gesellschaft der Aertze zu Wien*, Feb. 20th, 1860.

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19. *On the Therapeutical Methods of preventing Pitting of the Face in Confluent Smallpox.*—During the last five years Dr. Stokes has employed gutta percha and collodion in a considerable number of cases of confluent smallpox, for the purpose of preventing pitting of the face. In most of the cases the crust came off in large flakes or patches, composed of the dried exudations and the covering material, leaving the skin uninjured. This kind of treatment was most successful in cases of a typhoid character, but appeared to be not so well adapted to those presenting a more sthenic type. Dr. Stokes considers that the application of poultices over the face is the surest method of preventing disfigurement in smallpox. Their use should be commenced at the earliest period, and continued to an advanced stage of the disease. In most cases they may be applied even over the nose, so as to cover the nostrils. The plan should fulfil three important indications of treatment—namely, to exclude air, to moderate the local irritation, and to keep the parts in a permanently moist state, so as to prevent the drying and hardening of the scabs. The best poultice is formed of linseed meal, which should be spread on a soft material, such as French wadding, and covered with gutta percha paper or oiled silk. The conclusions to which Dr. Stokes arrives are the following: 1. That the chances of marking are much greater in the sthenic or inflammatory than in the asthenic or typhoid confluent

smallpox. 2. That, considering the change in the character of disease observed during late years, we may explain the greater frequency of marking in former times. 3. That in the typhoid forms of the disease the treatment of the surface by an artificial covering, such as gutta percha or glycerine, will often prove satisfactory. 4. That in the more active or non-typhoid forms the use of constant poulticing, and of every other method which will lessen local inflammation, seems to be the best mode of preventing disfigurement of the face.—*Dub. Quar. Journ. Med. Sci.*, Feb. 1860.

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20. *Neuralgia, with Deafness, cured instantaneously by the extraction of a tooth.*—M. ED. VAUTIER records (*Gaz. des Hôpit.*, 14 June, 1860), a case of this. The subject of it was a very nervous, slender woman, who had suffered for about four months with intense neuralgic pains, radiating through almost all the teeth, and also the muscles of the anterior region of the left side of the head. There was constant lachrymation of the left eye, and from the moment of the attack complete deafness in the ear of the same side. A number of physicians had been consulted, and sulphate of quinia, flying blisters, and atropia, in succession, tried without giving relief.

When seen by Dr. B. she was suffering severely; had long been deprived of sleep, and could not chew her food. The teeth were examined with care, but no one could be found carious. The wisdom tooth on the left side seemed, however, slightly painful on being touched, and loose. She was advised to have this tooth extracted, but with some temper refused. However, some days afterwards, her physician again advising it, she consented, and the tooth was extracted by M. Vautier. The pains at once ceased, and her hearing was restored. A month has since elapsed without any return of her complaint. She seems to be permanently cured.—*Journal de Méd. de Bordeaux*, June, 1860.

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21. *Cyanuret of Potassium in Neuralgia.*—M. ROCHE, in a communication to the Medical Society of Besançon, states that he has verified by a number of cases the efficacy of the external application of a solution of the cyanuret of potassium (20 to 30 centigrammes of the cyanuret in 30 grammes of water) in both fixed and superficial neuralgias. Although, says M. R., the physiological and therapeutical effects of the remedy show that absorption by the skin has taken place, he has never been able chemically to demonstrate this absorption.—*Gazette Médicale de Paris*, 14th July, 1860, from *Bulletin de la Société de Méd. de Besançon*, 1858.

[We have, in a number of cases, within the last twenty-five years, used this application for facial neuralgia, and, while in some it afforded prompt and entire relief, in others it failed to assuage the pains.]

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22. *On the Origin and Development of the Trichina Spiralis in Muscle.*—At the meeting of the Academy of Sciences in Paris, on July 2d, a communication was read from M. VIRCHOW, detailing the history and results of some interesting experiments which he has been making on the origin and development of the *trichina spiralis* in the muscular tissue.

According to M. Virchow, when a rabbit is fed on meat containing trichinæ, the animal becomes emaciated in the course of three or four weeks; it loses strength, and dies five or six weeks after the ingestion of the food. On examining its muscles, they are found to contain myriads of trichinæ; and there can be no doubt that death has been the result of progressive muscular atrophy, consecutive on the migrations of the trichinæ into the system. In one of the experiments, M. Virchow witnessed the death of the animal. It was so weak that it could not raise itself, but lay on its side; from time to time, it was slightly convulsed; then the respiratory movements ceased, while the heart continued to beat regularly; at last, death took place, after several spasmodic movements.

In his experiments, M. Virchow has obtained five successive generations of the trichina. He first fed a rabbit with trichinæ from a human muscle; it died at the end of a month. He fed a second rabbit with the flesh of the former one; this also died in a month. With its flesh, he fed three others at the same time; two died in three weeks, and the third in a month. He gave a large quantity of

the flesh of this to another rabbit, and a little to another; the latter died in eight days, but no morbid change could be discovered, beyond an intestinal catarrh: the former died in six weeks. In all the animals (except the last but one) all the striped muscles, except the heart, contained a very large number of trichinæ.

Carrying out his researches on the development of the trichinæ, M. Virchow has found that, a few hours after the ingestion of the diseased muscle, these parasites are found free in the stomach, from which they pass into the duodenum, and thence into the small intestine. On the third and fourth days, they are found to present distinct sexes—some containing spermatozoa, the other ova. Soon the ova are fecundated, and are developed, in the body of the mother trichina, into young entozoa. These are expelled through the vaginal orifice situated on the anterior half of the animal; and M. Virchow has found them, in the form of small *filariæ*, in the mesenteric glands, and in especially large number in the serous cavities, particularly the peritoneum and pericardium. They had, to all appearance, traversed the intestinal walls, probably by penetrating into the epithelial cells of the intestine. M. Virchow has never found them in the blood nor in the circulating passages.

Continuing their migrations, the trichinæ penetrate into the interior of the primitive muscular fasciculi; where, in three weeks, they have not only become numerous, but almost as large as those existing in the flesh with which the animal has been fed. To avoid error, M. Virchow has taken care, by removing a portion of muscle from the animal about to be experimented on, to ascertain that it was not previously infected with the parasite.

When the trichinæ have passed into the muscular tissue, M. Virchow says, this undergoes atrophy behind them; around them, irritation is set up, and from the fifth week they begin to be encysted. The sarcolemma becomes thickened, and a more active formation of cellular material appears to be set up in the muscular fibre;—the cyst, in fact, may be regarded as a result of traumatic irritation.

In the dog, the trichinæ pass readily into the intestines, but do not enter the muscles.

In the patient from whose body M. Virchow derived the muscular tissue for commencing his experiments, the phenomena attending death were precisely similar to those which were noticed in the rabbits on which his experiments were performed. The *post-mortem* examination revealed no other lesion than the presence of innumerable trichinæ in the muscles; but neither here nor in the rabbits were they visible to the naked eye. It is plain, then, that there may be cases of death from trichinal infection in which the presence of the parasites can only be recognized by the microscope. In those cases in which trichinæ have already been found in the human subject, it would seem not only that they had undergone encystment, but the cyst had for the most part reached an advanced degree of calcification. But, as the cysts do not commence to be formed until from the fourth to the sixth week, and the cretifaction probably after some months, it is probable that, where they have been found in man, a kind of spontaneous cure has been set up, and the symptoms attending the trichinal infection, having occurred long previously, have been overlooked or forgotten.

On making inquiry into the history of the woman whose body had supplied M. Virchow with the trichinæ, he learned from Professor Zeneker, of Dresden, whose patient she had been, that, four weeks before her admission into the hospital there, she had partaken of some pork containing trichinæ. The butcher who killed the pig also partook of its flesh, together with several other persons; and all had more or less severe rheumatic and typhoid symptoms; but the woman alone died.—*Gazette Médicale de Paris*, July 14th, 1860.

These observations of M. Virchow are of great interest both in their bearings on the pathology and the hygiene of an obscure affection.

It does not appear that pathologists, in examining the condition of the muscles in persons who have died of progressive muscular atrophy, have found trichinæ in them; at least Dr. Roberts, who has well epitomized our knowledge of the subject in his work on *Wasting Palsy*, makes no mention of this. M. Virchow's researches, however, decidedly point to the fact that the presence of

these parasites is, in a certain number of cases at least, the cause of the morbid phenomena; but whether the ingestion of trichinæ, and their development in the muscular tissues, is to be regarded as *the* cause of wasting palsy—even in those cases where the attack is general rather than local—is a question which requires further examination before it can be decided. In M. Zenecker's patient, death occurred in a few weeks after eating the diseased meat; while, in wasting palsy as described by previous writers, the course of the disease is ordinarily protracted through months and years. If a large proportion of the ordinarily observed cases of wasting palsy be really dependent on trichinal infection of the muscles, one of two things must occur; either the trichinæ must be capable of reproduction within the muscular tissue—which is not likely; or they must induce a permanently diseased state of nutrition of the muscles. Putting, however, speculation aside, we would place the matter for inquiry before pathologists. In a case of death from wasting palsy or progressive muscular atrophy, the muscles should be most carefully examined for trichinæ—not in single points alone, but in various parts of the course of each muscle. Virchow intimates, that the trichinæ in their course leave an atrophic state behind them.

In their hygienic bearings, these researches of M. Virchow belong to the same class as those which have rendered famous the names of Küchenmeister, Von Siebold, and other investigators of the origin and development of the parasitic entozoa. Here, as in the case of the cystic and cestoid worms, the presence of the parasites has been traced to the use of diseased food, and here also, as in numerous other cases, the pig has been found to be the animal at fault. According to M. Virchow, the tenacity of life of the trichinæ is great; well-smoked hams, however, kept for some time before being eaten, have no injurious properties, even though they contain these parasites.—*Gazette Méd. de Paris*, 14 July, and *Brit. Med. Journ.*, July 21, 1860.

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23. *Treatment of Oxyuris Vermicularis.*—M. COMPÉRAT has proposed a new remedy for the cure of the *oxyuris vermicularis*, and states that it has always succeeded in his hands. The plan is to administer five, ten, fifteen, or twenty drops of sulphuric ether in an injection of cold water, and to repeat the operation a greater or less number of times, according to the number of the worms and their greater or less tenacity of life. The ether is said to have the advantage, by its tenuity, of easily impregnating the larvæ, and consequently killing the animalcule *in ovo*, and also, by its anti-spasmodic properties, of soothing the general and local nervous phenomena which may be occasioned in the rectum by the presence of this parasite.—*Brit. & For. Med.-Chir. Rev.*, July, 1860, from *L'Union Méd.*, July 19, 1859.

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24. *On the Relative Amount of Sugar and Urea in the Urine in Diabetes Mellitus.*—A paper on this subject, by Dr. SIDNEY RINGER, was read before the Royal Medical and Chirurgical Society (June 26th, 1860). Two cases, patients in University College Hospital, under the care of Dr. Parkes, are given, in which the observations were made hourly over a considerable period, thus enabling the sugar and urea to be compared, under various circumstances, with greater accuracy. The following are the conclusions at which the author has arrived: 1st. That after the influence of food on the urine has entirely disappeared, a constant ratio is maintained between the sugar and urea. 2d. That after a purely non-amylaceous and non-saccharine meal, both the sugar and the urea are increased, but that during this increase the same ratio between them is observed. This ratio is 1 of urea to 2.2 of sugar. 3d. That under both these circumstances the sugar could only be derived from the nitrogenous elements of the body, and, therefore, that some such a ratio might on *à priori* grounds have been expected. The author next shows that after saccharine food has been taken, the sugar in the urine, as is well known, is increased, but that this increase of the sugar is accompanied by a decided increase in the amount of urea. Thus the sugar must cause a consumption of nitrogenous matter, probably resolving it into sugar and urea. Various kind of sugar were given, each of which caused an increase in the amount of urea, though whether one kind more so than another is not shown. These facts are sufficient to explain the cause of the loss of flesh in diabetic

patients. The author next shows that the amount of urea excreted in proportion to the amount of sugar taken in as food varies in different patients, and in the same patients at different times; and that the severity of the symptoms is in proportion to the amount of urea eliminated through the influence of the sugar, while no relation necessarily exists between the amount of sugar excreted and the severity of the symptoms: indeed, as is well known, the quantity of sugar in the urine may greatly rise in amount with the improvement of the patient. The method of arriving at the influence of an ordinary mixed diet is to ascertain the ratio between the urinary sugar and the urea; at least this method is sufficient in comparing various days together, provided the diet on these days be tolerably similar; for, he states, it is possible to conceive that though the amount of amylaceous matter may cause a much smaller quantity of urea to be eliminated, yet by increasing the former in the meal, the latter may be maintained at the same amount, or even increased, but a more nitrogenous matter would have been taken in with the amylaceous; the proportion of the former consumed would be much less, and consequently there would be more left to nourish the tissues. From this he thinks it is evident that the ratio must be obtained; for as most, if not all, the sugar generally passes off, it can be taken as a fair guide to the extent of the meal. This will explain those cases in which the improvement of the patient is accompanied with a decided increase in the amount of urinary sugar. The author shows, from the above cases, coupled with two others Dr. Garrod allowed him to take, that a ratio of 1 to 4 of urea to sugar is rapidly fatal; that life can be prolonged with a ratio of 1 to 8, while a somewhat rapid improvement is compatible with a ratio of 1 to 15. He next states that as the increase of the urea after a meal in health is probably due to the same cause as the increase under the same circumstances in diabetic patients, and as the sugar rises with it, maintaining the usual ratio (after a non-amylaceous meal), showing that they both come from the same source, if it can be further pointed out to what this increase in the sugar is due, it will explain the rise of the urea in health. After stating that it is possible that it may come from two sources, that it may be either due to some organ endowed with this function, which in diabetes is altered, or be the product of the retrograde metamorphosis of the tissue, he advances arguments to show that in these cases the sugar is due to the former, probably the liver. He thence concludes that the ordinary rise in the urea in health after a meal is due to that organ, which, in diabetes, produces a less highly elaborated sugar, the urea passing off unconsumed with the sugar. The author concludes his paper with a few facts of lesser importance, showing that the sugar, after a mixed diet, reaches its maximum in the early stage of the disease, during the third or fourth hour; while later, the maximum is not arrived at till the sixth hour. That after taking sugar in solution, the maximum is reached during the second hour. That the duration of the influence is longer later in the disease than at an earlier period: thus, at the commencement of the disease, the influence was lost in nine hours, while later in the disease it still continued after fifteen hours had elapsed. He also shows that the urea has a tendency to pass off earlier than the sugar, probably because it is more pernicious. Lastly, charts are given, showing the elevation of the temperature on several occasions after meals.—*Med. Times and Gaz.*, Aug. 11, 1860.

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25. *Auscultation of the Head in Children.*—M. Roger terminates a memoir upon this subject with the following conclusions: 1. A cephalic *souffle* is very often heard in the chloroanæmia of very young children, the sound being quite exceptional in affections of the encephalon. 2. In all cases it is dependent upon a changed condition of the blood. 3. Chloroanæmia is of frequent occurrence during the first year of life, and at the period of dentition. 4. It is also frequent, as well as unappreciated, in pertussis. 5. By cranial auscultation this changed condition of the blood may be recognized at a very early period, and may then be counteracted—a fact of great importance in early life, in which any debilitating cause may lead to, especially when predisposition exists, a general tuberculization. 6. The *souffle* is frequently, if not constantly, heard in rickets. It aids in determining, also, the nature of this affection, which should not be con-

sidered as a disease localized in the osseous system, but as an affection due to a changed condition of the blood, capable of implicating all the organism. The author also points out in relation to this sound the importance of determining the exact period of the closure of the fontanelles.—*Med. Times and Gaz.*, July 7, from *Bull. de l'Académ.*, t. xxv.

[It should not be forgotten that we are indebted to the late Dr. Fisher, of Boston, for first calling attention to the value of cerebral auscultation as a means of diagnosis in certain affections of the brain. See his paper in Nos. of this Journal for Nov. 1833, p. 289 *et seq.*, and for Aug. 1838, p. 277 *et seq.*]

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26. *On the Illumination of the Cavities of the Body by means of Electricity.* By M. FOUSSAGRIVES.—A long time ago, the author had conceived the idea that the electrical light might be advantageously substituted in diagnostic researches, or in operative manœuvres, for the ordinary methods of illumination, which are either insufficient in intensity, or defective by the colour of the light, or embarrassing by the impossibility of using them without interfering with the space required for instruments, and by the necessity, on account of the heat evolved, of keeping the light at a great distance from the surface to be illuminated. The whole problem consisted in discovering a source of light, with little or no calorific action, which might be condensed in tubes of small size and of diversified form, and which would be of sufficient whiteness not to alter materially the colour of the organic textures lightened up by means of it. By the assistance of M. Th. du Moncel and M. Ruhmkorff, this problem seems to have been solved in a satisfactory manner. M. du Moncel, having observed that the vacuum tubes of Geissler do not become heated under the influence of the electric light transmitted through them, and knowing, moreover, that this light is more brilliant in proportion as the tubes of communication between the terminal balls of the apparatus are of a smaller diameter, suggested that, in taking an apparatus of that kind, in which a long tube, almost capillary in size, should be bent upon itself, and convoluted in the manner of the electro-magnetic multipliers, we might obtain not only a kind of luminous cylinder, capable of being introduced into narrow cavities, but even a kind of electrical beacon, on certain points of which the light might be concentrated, without any risk either of overheating or of commotions of any kind. The first part of the problem was, therefore, solved. With regard to the colour of the light in the tubes, as this depends entirely on the nature of the gas on which the vacuum has been made, and as the colour is white with certain mixed gases, as Carburetted Hydrogen, Carbonic acid, Hydrochloric acid, etc., all that is required to meet this part of the problem is to prepare the tubes with suitable gases. M. Ruhmkorff, to whom the construction of these tubes was intrusted, and who has introduced several improvements in their formation, has obtained results which are quite satisfactory. He has found out a mixture of gas, which gives a suitable white light in the tubes; and experience has shown that the amount of light afforded by the apparatus is more than sufficient for the requirements of medicine and surgery.

Without for the present tracing absolutely the field of application of this new means of illumination, the following may nevertheless be pointed out:—

1. As a means of diagnostic exploration, in the examination of accessible organic passages, for the purpose of recognizing their normal or pathological condition. 2. As means of illumination to assist experimental action. It is easy to foresee the utility of this means in those operations which present, among their greatest difficulties, the impossibility of lightening up suitably the surfaces on which instruments are to act. In particular, the following will derive advantage from this new application—1st, Staphyloraphy; 2d, Operations for vesico-vaginal fistula; 3d, Extirpation of naso-pharyngeal or uterine polypi; 4th, Excision of tonsils, etc.. Finally, certain dental operations, also, may be expected to be rendered more easy of execution by this proceeding. It may be questioned, also, whether the field of the retina might not be illuminated more easily and completely by the same means.—*Le Moniteur des Sciences Méd. et Pharm.*, 31 Jan., 1860.

27. *The Laryngoscope and its Clinical Application.*—Physicians have long endeavoured to facilitate the means for physical diagnosis in those diseases situated in localities of difficult access. The Academy of Medicine in France has very recently discussed the merits of an apparatus intended to illuminate the openings of the principal cavities in the body. We can recollect the attempts made even to illuminate the interior of the urethra; and now we have an instrument brought forward for the exploration of the larynx and such parts of the pharynx as are inaccessible to ordinary inspection.

This method of examination, of which the first employment seems to date back several years, originated in Germany. In 1855, M. Garcia had an instrument constructed for the same purposes as those now under notice, and even named it the *laryngoscope;* but, owing to the results obtained by it being unsatisfactory, it was very soon abandoned as useless; and it is only since 1857 that, owing to certain practitioners in Germany having devoted their attention to this subject, and having made numerous experiments towards the perfecting of an apparatus of the kind, an instrument has been produced capable not only of assisting in the diagnosis, but of serving to guide the hand and otherwise assist in the treatment of disease of these parts.

It is chiefly to the labours of MM. les docteurs Turck of the General Hospital at Vienna, and Czermak, Professor of Physiology in the University of Pesth, that we owe the principal facts ascertained in regard to such appliances and their construction; while their first practical application as adjuvants in clinical medicine has been made by MM. Semeleder, Stoerk, Gerhardt, and some others.

The instrument used by M. Czermak consists of a small mirror, square or oval, or even round in shape, and having a handle fixed to it at one corner or side. The size of the mirror should correspond with the size of the parts to be examined; but between 15 and 30 millimetres, or perhaps an average size of 20 millimetres in diameter, is the dimension suited for the majority of cases. The thickness of the mirror should be about 2 millimetres, as any smaller size is apt to become cool, and to have vapours condensed upon its surface, and so lead to inconvenience during its use. The handle should be about 8 or 9 centimetres long, and so flexible that it may be adapted to the parts, and yet not be liable to bend during its application. The most important point is the mode of obtaining a sufficient amount of light during this process: and in order to do so, M. Czermak does not depend upon the light of the sun, as others have done, but adopts the method of artificial illumination employed by Professor Helmholz in ophthalmoscopic operations.

The mode of procedure in using this instrument is as follows: The patient is seated in front of the operator; the hands resting on the knees, the body inclined forward, the head thrown back, the mouth widely opened, and the tongue as much depressed and flattened as possible. The operator sits *vis-a-vis* with the patient, and grasps the knees between his, having taken care to place the patient in the fullest light of a lamp placed upon a table at his right hand, the lamp having a beak or neck, as in the ophthalmoscopic apparatus, which shall throw a vivid stream of light into the back part of the mouth.

The next stage in the procedure is to introduce the mirror, sufficiently warmed and adapted to the part desired to be examined. In order to effect this, the patient is told to take a deep inspiration and emit the sound of the letter ê alternately. During this manœuvre the mirror is introduced under the velum palati, thus raised for the moment, and then directed so as to suit the position of the part to be inspected. This process, which is that recommended by Garcia, has been improved by Czermak, who, besides the reflecting mirror, adds an illuminating one with an opening in its centre, through which the eye of the operator is directed; and this second, or illuminating mirror, is fixed either round the head of the surgeon, or in the manner of a pair of spectacles, or held between his teeth—the latter being the plan followed by Czermak.

Laryngoscopy thus performed by a dexterous and experienced hand—because it requires much experience to acquire facility in its practice—enables not only the deeper portions of the larynx to be examined, but even the bifurcation of the bronchi to be distinguished; and in this manner M. Czermak has diagnosed cases where hoarseness was supposed to be of a nervous nature, to be cases of

organic disease of the vocal chords, etc. etc.—*Edin. Med. Journ.*, June, 1860, from *Gaz. des Hôp.*, March and April, 1860.

28. *New Experiments regarding the Origin of Cow-Pox.*—The opinion of Jenner regarding the origin of vaccinia, alternately supported and contradicted by various observations, is at present, at Toulouse, being tested by new experiments, of which Dr. A. Fontan has given the following account, dated Toulouse, 24th May, 1860:—

"A happy accident occasioned my passing through Toulouse at a time when a question of the highest importance was being submitted to experiment, I mean the question of the origin of vaccinia. The following is an abstract of the principal facts: Some weeks ago, M. Sarrans, of Rieumes, observed that several mares brought back to his establishment for the second or third time, were affected with the *grease* (*eaux-aux-jambes*). There was a sort of epidemic of the affection, for nearly a hundred horses were found to be suffering from it. The variety of grease was the pustular form.

"One of these mares was taken to Toulouse to the veterinary school, where the learned Professor M. Laffosse soon recognized the true character of the epidemic. He inoculated with some of the matter of these pustules the teat of a cow, in the presence of his assistant and numerous pupils. Soon afterwards fine pustules made their appearance on the udder of the cow. One of the most distinguished physicians of Toulouse, Dr. Cayrel, the official vaccinator of Toulouse, vaccinated, with matter from the pustules of the cow, several infants who had never been vaccinated. Well characterized vaccine vesicles followed, presenting their pearly aspect, central depression, and rose-coloured areola, increasing in size from day to day without any trace of erysipelatous inflammation.

"A second cow was vaccinated with matter from the first cow, and infants were vaccinated with the matter from the second cow: the results were equally satisfactory as in the former case. At present they have arrived at the fourth vaccination from the first cow, and at the third from the second cow. I was present at this vaccination; the vesicles were very fine. One was photographed in my presence, with a tolerably satisfactory result. The vesicle presented the most characteristic appearance of vaccinia. When pricked, no purulent matter escaped, but gradually a serous fluid oozed out in great abundance, with which several infants were vaccinated.

"The new matter is very active, and succeeded in the case of a pupil of the veterinary school, vaccinated in infancy, and in whom all previous attempts at revaccination had failed. I saw a vesicle in an infant produced by the virus of this pupil, finer and more developed than three other vesicles produced by an ordinary vaccination in the same infant. (No doubt the two vaccinations were performed simultaneously.)

"Already thirty infants have been vaccinated at Toulouse. No unpleasant symptoms have manifested themselves in any case; and in all, the result has been most satisfactory.

"Dr. Izarié, formerly vaccinator in Paris, considered the vesicles so good, that he had his son vaccinated this morning with virus from one of the infants.

"An official commission has been named by the Prefect to carry out these experiments. A report will be drawn up and communicated in due time."—*Ed. Med. Journ.*, July, 1860, from *L'Union Médicale*, 29th May, 1860.

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

29. *Sanguineous Tumours the Result of Accidents.* By WM. HARGRAVE, Prof. Surg. Royal Coll. Surg.—Effusions of blood the result of injuries may present one of the following appearances: 1st. Ecchymosis, more or less extensive, indicating its characters by the alteration in colour of the skin, and limited

principally to the capillary vessels. 2d. A general diffusion of blood through the parts contused, with more or less pitting on pressure, and not for some days causing any discoloration of the integument; this occurs when it is effused in the deeper tissues close to the bones, after which period the change in the colour of the skin often becomes very similar to what is seen in superficial ecchymosis. 3d. The blood may be located and circumscribed in a cavity, giving all the characters of the bloody tumour or sanguineous deposit; when it is effused under the scalp, forming the peculiar characters of this kind of tumour so well known in this region, so likely to be confounded with depressed fracture of the cranium. This kind of tumour is generally considered special to this region; still, where blood becomes effused from violence over bones, or other resisting surfaces in other situations, we find it presenting analogous symptoms, giving rise to the possibility of an error in diagnosis. In a case of this kind over the fibula, the bone presented all the phenomena as if a circular piece of it was driven into the interosseous space by a punch, surrounded by a firm resisting rim; but the hardness and crepitus which here were present disappeared under pressure, returned after a little time, again by the same means disappeared, which led me to a correct diagnosis which the subsequent treatment proved to be correct. A more remarkable case was in a man admitted November 12, 1857, John M——; he was carrying a heavy trunk across his loins, and made a false step, which caused it partly to slip from its position, but not to fall off; the result was, the cellular membrane connecting the skin to the lumbar region was lacerated, and a large quantity of fluid blood was effused in this region, forming a bag or sac as large as my entire hand. The circumference of this tumour was as well defined in resistance by a firm ring as any scalp bloody tumour that was ever presented to the practitioner; this large quantity of blood never caused any cutaneous discoloration, and was completely absorbed in one month, being discharged from hospital December 12.

When these tumours are very deep-seated, they occupy a long time before they come to the surface containing blood; sometimes the colouring matter of it is absorbed, and after the lapse of many months the characters of a serous cyst is recognized by the surgeon, who, by a careful investigation of the case as to its history, will form a correct opinion of its formation; while, in some rare cases, the fluid contents of the cavity are absorbed, and a reddish-brown kind of tumour is the consequence of the accident, and in others still more rare instances, the effused blood has remained for years dormant, undergoing no alteration in its physical qualities; the cavity when opened presenting this fluid of its normal appearance. The following cases are examples of a long period elapsing before the tumour in any way approached the surface: Patrick F——, a brewer's labourer, was admitted into hospital, having met with the following accident three months before admission: the lower part of his right thigh was severely bruised, almost crushed, between two porter barrels. On examination, a large fluctuating soft swelling was detected above the knee and to the inner side of the thigh, evidently containing a fluid which was considered to be a purulent collection; it was very superficial, with no tegumentary discoloration. This man was of a highly sanguineo-nervous temperament. Before the abscess was opened he asked for chloroform, and when *slightly* under its influence I passed a lancet into the most prominent parts of it, avoiding the saphena vein; pus first issued from it, then mixed with fluid, and some coagulated blood. The wound was immediately closed and maintained by suitable appliances. A smart attack of irritative fever followed, which required some days to subdue; cold evaporating lotions were applied to the swelling, conjoined with rest, and bandages carefully applied; the contents were absorbed, the man leaving the hospital convalescent, and experiencing no inconvenience from a bloody tumour containing pus being opened.

The next case is one of some novelty. James K——, a discharged soldier, admitted into the City of Dublin Hospital, August 30, 1858, for secondary syphilis. In the following month of January he called my attention to a very prominent swelling occupying the left nates, bulging up into the gluteal fossa, in fact, making it convex. No uneasiness or distress of any kind, but evident fluctuation. As abscesses at that time were almost of daily presentation, both

at the dispensary and formation in the hospital, I passed a lancet into it, when a quantity of grumous blood, speckled with pus, issued from the wound, and continued to flow through it, which was immediately closed and so maintained. On questioning him if he ever received an injury on this region, he stated he was at the relief of Lucknow, in September, 1857, was struck with the butt of a musket on this part, and was felled by the blow. On recovering himself he was able to walk, though badly; the effects of the injury so soon subsided that he took no further notice of it, when, after the lapse of some months, the swelling began to appear, to which he called my attention, which I opened as an abscess, but in reality a sanguineous tumour which lay dormant for nearly sixteen months, and was slowly and most chronically passing into the suppurative stage, as evidenced by the purulent dottings mixed with the blood. He experienced no inconvenience whatever from its being opened, the wound healed, the swelling subsided, and he left the hospital convalescent, February, 1859. This man suffered no irritative fever of any kind; the former had a smart attack of it, he was of sanguineo-nervous temperament, the soldier of a bilious one. Could these temperaments be the cause of the difference in the results of opening these tumours?

In the treatment of sanguineous effusions, the abstraction of blood is often indicated, either by leeching, by cupping, or by venesection. The two first have almost superseded the last. Venesection may be considered the exception in medical practice in its widest sense as a remedial agent at the present day. Of late this practice has been much canvassed and completely rejected by some practitioners of authority, and is likely to become a mere historic record of what was formerly the rule. I confess that at the period I entered the profession venesection was actively, and *I will add successfully, practised, cum pleno rivo ad uncias viginti, vel ad deliquium animi*, and many recoveries and few deaths were the result. Of the juvenile operators I might say of myself, *œuorum magna pars fui*. My early training and observations then made on this practice is so implanted in my mind that I have not abandoned the lancet, as others have done, but use it in not the same heroic way it was at the time I refer to. We all acknowledge that a remarkable change has come over our organization, the *vis vitæ* is no longer above par, or at par, but in most cases below it. Is it for this reduction of our forces that so useful a means of combating disease is to be abandoned? Certainly not; but proportion the quantity of blood to be drawn to the strength of the patient, and no unpleasant result but benefit will follow from it. To prevent the possibility of my being misunderstood, in place of taking a dash of blood of twenty ounces at once, as was formerly the hospital parlance and practice, let but from four to six be abstracted, and much relief will attend it, by which the oppressed organ and condition of the parts injured will be relieved; while the venous vascular system being quickly emptied, a stimulus is thus given to the absorbent system, and the rapid disappearance of effused fluids follows this practice, and which I have no reason to regret up to the present time; while the scarificator will not be required with its markings, nor the annoyance of the application of leeches be endured, or the unpleasant consequences which sometimes follow their bites when made in the integuments which cover extravasated blood. I feel satisfied that all classes of practitioners have gone into the opposite extreme by ignoring the lancet too much. I have been speaking of venesection as applied to the bend of the arm; but there is another—namely, that of the external jugular vein—an operation in some cases of great value, which not many young men passing from the schools into practice know how to perform single-handed and with success, without any dread of air being suddenly absorbed into the vein and killing the patient with intense rapidity by being hurried along it to the heart. The feeling alone of being considered egotistical prevents me giving such directions for opening the jugular vein, apparently a simple operation, as would guard against all mishap.

At some future period I may assign my reasons for the decadence of the *vis vitæ* at present so patent to all observers; but it is only temporary, the coming-on cycle will show to those who see it that the human system will again rally, and with benefit will bear the lancet as a remedial agent.—*Dub. Med. Press*, July 11, 1860.

30. *Report of Twenty-four Cases of Tracheotomy performed in the Last Stage of Croup.*—In this paper Dr. Fock gives an account of the cases of tracheotomy for croup which have occurred in his practice, and in that of his colleagues, at the Magdeburg Hospital. He observes that, notwithstanding some of the leading practitioners in Germany—such as Langenbeck, Baum, Roser, and Bardleben—resort to the operation, and recommend it in their lectures, it has obtained no general admission into German practice. Of these 24 cases, 10 were successful, the particulars of both these and the unsuccessful cases being exhibited in a tabular form. To this statement Dr. Fock appends some observations.

1. These cases are decidedly in favour of the operation; inasmuch as it was not resorted to until a stage of the disease when death seemed quite inevitable without it, notwithstanding the persevering employment of the various remedies. The saving 10 out of 24 children, apparently absolutely condemned to die, cannot be regarded as other than a great success. It is not desired to draw from these facts the conclusion that the operation should be resorted to in every desperate case of croup, although it is very difficult to indicate in which of such cases it should be abstained from. It would be a mistake to estimate the degree of danger alone from the amount of dyspnœa; for even when this becomes suffocative during the operation, success may yet be the result. As a general rule, it may be stated that the most favourable prognosis may be delivered in those cases which exhibit themselves from the first as pure croup, and are attended by constantly-increasing paroxysms of dyspnœa; while the contrary is the case when there has been a preliminary bronchial catarrh during several days, and when the child, after seeming to be in a state without any peril, suddenly passes into a condition of actual croup. Either on account of the small quantity of air which enters through the contracted larynx, no bronchial *râle* is produced, or its existence is masked by the laryngeal sounds. The operation is resorted to, and the child in all probability dies with bronchitis and pulmonary œdema. When accompanying the croup, too, a wide-spread bronchitis is observable, the dyspnœa may be more dependent upon the latter than upon the obstruction of the larynx. Pulmonary œdema is probably already present, and death will take place within twenty-four hours after the operation. The difficulty in the performance of auscultation and percussion in these cases is sometimes immense, and may amount to an impossibility. In such instances we can only fall back on the history, and remember that cases of croup in which the disease has become developed with rapidity and violence are more favourable for the operation than those in which it has for some days been preceded by catarrh. In the latter cases the operation should be declined. Again, the prognosis has always been, within the author's experience, of a favourable character when the depressions below the larynx and at the epigastrium become very marked during inspiration. The exaggerated actions of the inspiratory muscles, especially the accessories, augment such depressions much when the lungs are entirely free, and the obstacle is only placed in the larynx; but the smaller amount of such depression is quite remarkable when there is co-existing pneumonia, extensive bronchitis, or pulmonary œdema. In such cases the probabilities of success are too small to warrant our undertaking an operation. Lastly, the constitution should influence our prognosis. It is decidedly more favourable in thin, long-necked children, than in those of an opposite conformation. In determining whether we shall operate in a given case, we have to ascertain whether the after-treatment, as regards watchfulness, skilful nursing, &c., can be secured—matters which, however easily provided for in a large town, and in a hospital, may not be attainable in a country district; and yet upon them the result may entirely depend.

2. As to the operation itself, the reporter enters into the details and the difficulties of its performance, which we need not repeat. He says he always resorts to chloroform, which renders the operation far more easy of performance; and he has never, even in extreme dyspnœa, found any ill effect to result from its employment. At first the dyspnœa is increased by the inhalation, but the narcosis is speedily established, and then the breathing becomes much calmer than before.—*Brit. and For. Med.-Chir. Rev.*, July, 1860, from *Deutsche Klinik*, 1859.

31. *Scalds of the Larynx.*—Of the many accidents to which children are liable, one of the most painful and fatal is that produced by swallowing or attempting to swallow boiling fluids. Dr. PAUL BEVAN, in an interesting article in the February number (1860) of the *Dublin Quarterly Journal of Med. Sci.*, relates four cases of this accident, and advocates the old method of treatment in preference to tracheotomy, now generally advised.

Dr. B. divides the symptoms into two stages. "In the first stage, the mouth and fauces alone are affected, but the respiration is unimpaired. In the second, the ingress of air is impeded by laryngitis; and œdema glottidis, and incipient congestion of the lungs, are the result. In the third stage, engorgement of the lungs, and consequent congestion of the brain, are added to the previous symptoms. This division can be made in all cases; in some, no doubt, the second follows the first stage so rapidly that they might be said to be simultaneous; but, in the majority, an interval of several hours takes place between them. The child, immediately after the accident, suffers most intensely; he keeps his hand to his mouth and larynx, screams violently, and cannot swallow. After the fright and immediate pain have passed over, no bad symptom may come on for several hours: during this period he may play or sleep, or even eat fruit or cakes, given to him by his parents to stop his cries. At this time the mouth and fauces are red; white blisters are seen on the lips, cheeks, and near the root of the tongue, but he breathes without difficulty. That the symptoms are so trifling at first, should be carefully borne in mind by the surgeon. I have known several cases where children lost their lives from inattention to them in this stage; and the mistake is the more liable to occur, as frequently the symptoms are in no way more severe or different than those arising from simple scalds of the mouth, which will, of course, be rapidly cured without any treatment.

"The second stage, whether it comes on rapidly or slowly, presents much more alarming symptoms. The breathing is stridulous and croupy, rapid and much embarrassed; the features are bloated and pallid; pulse rapid; skin cold and damp; he has a tendency to doze, but can readily be roused. In addition to the changes observed in the mouth during the first stage, on examination, the epiglottis will be felt by the finger to be round and hard, of the size and shape of a gooseberry or large nut, whilst sonorous and sibilant rales will be heard over the greater part of the chest. These symptoms continue for several hours, and are gradually changed into those of the third stage; in it, the respiration becomes more and more laboured and croupy; the efforts to inspire are more painful; the larynx is drawn up and down rapidly, and deep fossæ are formed above the clavicles during the convulsive efforts to fill the chest. The little patient lies with his head thrown back; his eyes fixed, half open, and turned up under the lids; the pupils are fixed and dilated; his face is swollen and purplish; his mouth half open; he tosses his arms about; and, although semi-comatose, vainly seeks to relieve the sense of impending suffocation from which he is suffering. During this stage, the mucus is heard rattling up and down in the lungs and bronchial tubes; coma gradually increases, until he either dies in that state, or is carried off in a paroxysm of convulsion.

"The treatment recommended and adopted by the most distinguished surgeons and physicians of the present day may be summed up in a few words: at first, antiphlogistics; and then, the operation of tracheotomy; the only difference of opinion being as to the time at which the operation should be performed."

Dr. B. says: "If the patient is *in extremis*, then, no doubt, the surgeon is justified in trying the operation, as, although nearly hopeless, it is the only treatment which can save the patient from immediate dissolution; and that occasionally such a case may recover, is proved by a few instances reported in the periodicals and in books. Still I believe that the antiphlogistic treatment, if conducted with sufficient rapidity, will be far more successful; but, to be successful, it must be rapid and energetic in the extreme; a few hours are all we have for treatment, unless we can suddenly stop, or at least delay the progress of the second stage; the injury to the lungs and brain will be such as to preclude the possibility of success.

"I commence the treatment with an emetic, followed by a cathartic enema, at the same time a few leeches, according to the strength of the child, are applied

over the upper margin of the sternum, the bleeding being encouraged by a warm fomentation or poultice. Should the child sleep, I leave directions that I shall have notice of his having awakened, or visit again in a few hours. Should symptoms of the second stage appear, I commence calomel in doses according to the age and strength of the child and the severity of the symptoms. The leeches should be repeated every third or fourth hour, if the strength of the child permits it, great care being taken to avoid hemorrhage from the bites, or exhaustion from loss of blood; for this reason it is indispensably necessary that either the surgeon or a competent assistant should visit before each repetition of the leeches. The calomel should be repeated at very short intervals, every hour or half hour, and the body should be rubbed with mercurial ointment, or a portion of the ointment be placed in each axilla, the object being to produce the specific effect of the mineral in the shortest possible time.

"The effect of this line of treatment has been most satisfactory. The leeching gave relief for the moment, and, although its effects were transitory, yet it gave time for the action of the mercury, in all probability promoted its absorption, and at the same time diminished the congestion of the brain. As soon as the mercury produced the green stools, the symptoms in every case were improved, and the child recovered. The lungs were the first organs relieved, the brain next, and the larynx last of all; indeed, for several days, after all other bad symptoms had disappeared, the epiglottis remained swollen and hard. Should the case have arrived at the second stage, the orthopnœa being considerable, and the congestion of the lungs rapidly coming on, I at once and the same time use the emetic, leeches, enemas, and frictions with mercurial ointment. As soon as the stomach is sufficiently settled, after the emesis, I give the calomel in two-grain doses, and usually repeat it every half-hour, till its effects are produced, the leeches being repeated as before, every second or third hour, according to the strength of the patient. It may be said that similar treatment has been tried by others. No doubt, leeching and bleeding have been much practised. Dr. Watson seems to place his principal reliance on this and on tracheotomy; but he gives some cases himself where it did not succeed; and I have seen two where it was carried to such an extent as to produce complete exhaustion, and still the disease appeared to me to progress the more rapidly. In fact, I look upon its effects as merely transitory, and of importance in saving the brain and lungs from impending congestion until the mercury has time to act. Mercury has been lauded by some, and dispraised by others. Dr. Watson does not depend on it; he says: 'We cannot reckon upon its influencing the system *in time*, nor upon any marked improvement of the symptoms, when it does produce its specific effects.' No doubt, if given as it generally is, two grains of calomel every third hour, the patient will die before its effects are produced; but, if given every half-hour, in one or two grain doses, its effects will be produced in an extremely short time, especially if assisted by mercurial inunction over a large extent of surface. This method of rapidly producing the effects of mercury on the system has been taught us by cases of injury of the head, where in a few hours we have salivated adults by small and rapidly repeated doses of the metal; in the present cases the green stools were produced in one so early as eight hours after the first administration of the mercury, and, in the other cases, in periods varying from eighteen to twenty-six hours. I do not deny that patients may die, even after the action of the mercury on the system, but I have never seen an instance of it except one where I had previously performed tracheotomy, from which circumstance I now doubt whether he would not have recovered had the operation been omitted. It may be said that four cases are not sufficient to establish any line of practice. My answer is, that they are the only cases I have had since I made use of this mode of treatment, and as they were all successful, I think I am justified in publishing them, in hopes they may lead others to follow the same course, and publish the results. It might be thought that the administration of such large doses of calomel in so short a time would be objectionable, but, except in one case, where an increased flow of saliva for a couple of days, and, in another, where a slight diarrhœa succeeded, no bad effects whatever resulted, and the children appeared to enjoy perfect health after a few days.

32. *Fractures of the Neck of the Humerus.*—Dr. P. H. WATSON exhibited to the Medico-Chirurgical Society of Edinburgh (June 6th, 1860) two specimens of fracture of the neck of the humerus, complicated with impaction—one *intracapsular*, the other *extracapsular*, or through the anatomical and surgical necks, as they were frequently called. The latter he showed merely by way of contrast with the former. In the intracapsular, the impaction consisted in the head of the bone being driven into the upper part of the shaft; in the extracapsular, the upper and inner part of the shaft was driven into the cancellated structure of the head. In both, complete osseous union had resulted.

Dr. Watson stated that he thought the first specimen, as being an instance of completely united intracapsular fracture along the line of the anatomical neck, would be interesting to the Society, as some surgical authorities had denied the possibility of such an injury occurring at all; while others seemed to believe that, if it occurred, the separated portion could not retain its vitality, and others had taken it for granted that, if fractured, and retaining its vitality, osseous union could not result. Now, although undoubtedly necrosis of the separated head did sometimes ensue (and he was acquainted with two such cases, the portion losing its vitality giving rise to suppuration, and requiring to be removed as a sequestrum), still, a more common result seemed to be impaction of the head between the tubercles of the humerus, producing a secondary fracture of the upper part of the shaft, attended with more or less comminution. Such had obviously been the case in this preparation; and Dr. Watson begged the Society to observe, with reference to the displacement, that, while in impacted fractures of the surgical neck of the humerus, the *neck* was driven into the *head* of the bone, in impacted fractures of the anatomical neck of the humerus, the *head* was driven into the *neck*, and was, therefore, the converse of what was observed in the extra and intracapsular fractures of the neck of the femur.

Dr. Watson also remarked, that some recent writers upon the subject of such fractures had wished to attribute the displacement of the head of the bone into the upper part of the shaft, to the effects of chronic inflammation and interstitial absorption following the injury, and occurring gradually, and not to the direct effect of the injury itself—muscular contraction being presumed to assist in producing this gradual change, by drawing the shaft inwards and backwards against the separated head of the bone supported against the glenoid cavity. A single glance, however, at this preparation and the glenoid surface of the scapula, would, he thought, show that such was not the case in this instance; for it was obviously the displaced and altered lesser tubercle which alone had been in contact with the glenoid cavity, the opposed surfaces being grooved and polished against each other, while the head of the bone, lying completely behind and below this new articulation, was in no way connected with it.—*Edinburgh Med. Journ.*, July, 1860.

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33. *Intracapsular Fracture of the Neck of the Humerus.*—Dr. SPENCE exhibited to the Medico-Chirurgical Society of Edinburgh (May 2, 1860), a specimen recently obtained of this peculiar form of fracture. A man, advanced in life, in consequence of a fall, sustained a fracture of the neck of the humerus; about fourteen days after, he was attacked with apoplexy, of which he died, about four weeks after the date of the injury. On examination, it was found that the fracture differed from that usually observed in adults—the fracture passing, not through the surgical neck of the bone, but through the anatomical neck, *i. e.*, between the head and the tuberosities, and within the capsular ligament. This fracture in the humerus is, therefore, entirely analogous to the intracapsular fracture of the neck of the femur, which occurs so frequently in old people. An opportunity rarely occurs of ascertaining by dissection this form of fracture of the neck of the humerus, which may possibly, therefore, be more common than is usually supposed.—*Edin. Med. Journ.*, June, 1860.

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34. *Contributions to the Pathology of Dislocations of the Shoulder-joint.*—Mr. W. H. FLOWER, in a paper read before the Royal Medical and Chirurgical Society (June 12th, 1860), endeavoured to reconcile the discrepancies and correct the errors which are found in the descriptions of the dislocations at the shoulder-

joint given by most English and foreign surgical authors. In the endeavours to accomplish this object, three methods of investigation were adopted: 1. An original examination of the symptoms of recent examples, and of the published records of cases. 2. Experiments upon the dead subject. 3. Examination of all the specimens which illustrate the subject preserved in the anatomical museums of London. A table was appended of thirty-two recent cases, contributed by House-Surgeons of several London and provincial Hospitals, according to a form drawn up by the author; the principal aim having been to obtain an accurate record of the symptoms, with measurements, in a number of cases in which the exact position of the head of the humerus, so far as it could be ascertained by external examination, was established. An account of the examination of forty specimens of dislocation at the shoulder-joint, contained in the various anatomical museums in London, formed the second table. In entering upon this part of the investigation, care was taken to exclude cases that may have been the consequence of disease; and, with this view, the differential characters of the changes produced by chronic rheumatic arthritis and by unreduced traumatic dislocation were pointed out. The general results of the inquiry were given in observations upon some of the special forms of dislocation, of which the following are the most important: 1. *Subglenoid.*—"Downwards and forwards; the head of the humerus placed in front of the inferior costa of the scapula, below the glenoid fossa." The cases contained in the appended tables appeared conclusively to confirm the observations of Malgaigne, and the modern French school, that this form of dislocation is comparatively rare—an opinion opposed to that of the majority of English, German, and earlier French authors. Of the thirty-two recent cases in Table 1, five were assigned to this variety; and of the forty specimens in Table 2, but three, even if one were included which was properly an intermediate form between this and the subcoracoid; in all, eight out of seventy-one. The author remarked that it was difficult to understand how the wide-spread error of regarding the subglenoid as the typical form of dislocation at the shoulder-joint should have been so long maintained. A simple process of reasoning upon the anatomical structure of the part would suffice to show that, whenever the humerus is thrown from its socket, it will, almost of necessity, be drawn upwards until it is arrested, either by the coracoid process in front, or the spine or acromion behind. Even in the dead subject, when the humerus is dislocated by fixing the scapula and forcibly elevating the arm, it is almost always drawn up close against the under surface of the coracoid process; *à fortiori*, in the living, must the action of the deltoid, coraco-brachialis, and biceps cause it to assume this position. In fractures about the neck of the humerus the action of these muscles in raising the lower fragment has long been recognized. 2. *Subcoracoid.*—"Forwards and slightly downwards; on to the neck of the scapula, in front of the glenoid fossa, and immediately under the coracoid process." Under this term were included two varieties, which Malgaigne considers distinct, and designates respectively "subcoracoid" and "intracoracoid." The author observed that, although there are doubtless characters by which well-marked cases of either can be determined, the difference between them is slight, and being rather of degree than of form, there seems no practical advantage in retaining it in our classification. The anatomical characters of this form of dislocation, when recent, were fully described in the paper, as were also the changes which take place in the ends of the bones when left long unreduced, the latter being illustrated by a diagram. The causes of subcoracoid dislocation, as illustrated in the twenty-seven cases in Table 1, were as follows: Direct falls upon the shoulder in eleven, upon the elbow in four, upon the hand in five; while in seven cases the cause is of exceptional or doubtful nature. Symptoms: The arm was elongated in ten, unaltered in six, and shortened in eleven; the greatest elongation being one inch, the greatest shortening seven-eighths of an inch. The vertical circumference of the shoulder was increased in all. The elbow in every case projected more or less from the side, was directed backwards in eight, forwards in nine, and in the middle line, or in a position not recorded, in ten. The arm was rotated somewhat inwards in seventeen, outwards in three, and either unchanged or not recorded in seven. In about half the cases the head of the bone was felt in the

axilla, without moving the arm from the side; in the other half, only after the limb was abducted; but in all the head of the bone was felt through the anterior wall of the axilla, either immediately or not more than half an inch below the coracoid process, the only real diagnostic sign of this injury. 3. *Subclavicular.*—"The head of the os humeri placed below the middle of the clavicle, and on the sternal side of the coracoid process." The frequency of this form of dislocation has been much overrated in consequence of the subcoracoid not having been recognized as a common variety. A dislocation that was not subglenoid was supposed necessarily to be subclavicular. The cases in which the position of the bone exactly corresponds with the above definition of Sir A. Cooper must be very rare indeed, although there are a sufficient number on record to prove the existence of this as a distinct variety. There is no preparation in any of the London museums which shows it. In conclusion, the author stated that all original and unbiassed observation seemed to point to the subcoracoid as the typical position of the head of the bone in traumatic dislocations of the humerus, and a general recognition of this fact would, in his opinion, be an important step in the process of eradicating many of the difficulties and errors in which the pathology, both of the injuries and diseases of the shoulder-joint had hitherto been involved.—*Med. Times and Gaz.*, June 23, 1860.

35. *Extreme Relaxation of all the Ligaments of the Left Knee-Joint, consequent on Chronic Inflammation.*—Prof. HARGRAVE relates (*Dublin Medical Press*, July 11, 1860) the following remarkable example of this:—

"A servant, aged 51, was admitted into the City of Dublin Hospital in May, 1858, with loss of power of the right inferior extremity. He was treated principally for the local symptoms by moxas applied along the sciatic nerve, which, after some time, afforded so much relief that he recovered power over the muscles, but it was feeble, still better than when admitted into hospital. After being in the house for some time he was attacked with chronic inflammation of the left knee-joint, implicating chiefly the ligaments, and terminating in the formation of abscesses, which extended to the posterior part of the leg. These were opened, to which succeeded a very severe and prolonged attack of deep-seated diffuse inflammation of the cellular membrane of the limb with the formation of large collections of matter between the gastrocnemii muscles, which required to be freely opened. During this attack a very remarkable set of symptoms made their appearance—general relaxation of *all* the ligaments of the left knee-joint. To such an extent did this take place that the leg could be flexed anteriorly to a right angle with the thigh, and to the same angle either by abducting or adducting the leg. No pain whatever was referred to *any* of the ligaments or to the joint. This very extreme and insidious condition of the articulation was met by every appliance that could be availed of to maintain the limb *in situ* when in bed, but of very little benefit when the man was in the erect position; in fact, the limb was useless as a means of progression. He was under treatment for this affection for over three months, when he left the hospital in every other respect in good health, with recovery from the paralytic state of the right limb and perfect use of it. During the treatment for this condition of the left knee, I would have availed myself of the veterinarian practice—namely, firing all round the joint, but did not consider that it would have in any way benefited ligaments so deep-seated as the crucial ones, and covered by so great a thickness of soft parts as the ligamentum posticum, all of which were relaxed to an extreme degree when such unusual positions could with painless facility be given to the leg. I have made repeated inquiries after this patient, and have not been able to learn anything positive about him."

36. *Amputations at the Hip-Joint.*—M. JULES ROUX gives an account (*Gaz. Hebdom.*, 1860, Nos. 18, 19) of six amputations at the hip-joint which have been recently performed at Toulon, four of these being followed by success. He also refers to six other cases which have occurred to other officers of the French marine, making in all 12 cases, with 7 deaths and 5 recoveries. Of these, 5 were immediate or primary (some hours or days after the accident), and all fatal; 4 mediate or secondary (several months after the accident or the disease), 3 re-

covering and 1 dying; and 3 ulterior or consecutive (one or more years after the accident or disease), 2 recovering and 1 dying.

In the latter part of his paper, M. Roux adduces the recent evidence of the French military surgeons, in proof of the almost invariable fatality of immediate hip-joint amputations, and the frequent triumphs of conservative surgery in gunshot injuries of the upper third of the femur. Indeed, he gives a list of 21 cases of this injury examined at his own hospital at Toulon since the Italian war, in all of which consolidation of the fracture had taken place. Not one of these men would have survived had primary disarticulation of the femur been performed; and in only one instance of the number, six months after the occurrence of the injuries, had secondary hip-joint amputation become necessary. With respect to gunshot fractures of the lower two-thirds of the femur, in spite of cases of cure without operation, all statistics prove that amputation is more successful than abstaining from it. The general conclusions are: 1. That gunshot fracture of the upper third of the femur is an exception to the law which requires amputation, after all gunshot injuries of this bone. 2. That several months after gunshot wound of the femur, when the necessity for an operation has become obvious, amputation at the hip-joint should be preferred to that of contiguity, whatever portion of the bone may have been fractured. The longer the operation can be safely delayed, the greater are the chances of recovery.—*Brit. and For. Med.-Chir. Rev.*, July, 1860.

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37. *Treatment of Congenital Imperfections of the Rectum by Operation.*—Mr. T. B. Curling read before the Royal Med. and Chirurg. Society (June 26th, 1860), a paper on this subject founded on an analysis of 100 cases, 9 of which occurred in the practice of the author. With the view of ascertaining and estimating the results of the operations which have been resorted to in the different forms of congenital imperfections of the rectum, either for the preservation of life or its future comfort, and of assisting to establish the best modes of proceeding in these cases, the author has collected and tabulated 100 cases in which operations have been performed by himself and other surgeons. Of these cases, 68 were males and 32 females. He classes the congenital malformations of the rectum as follows: 1. Imperforate anus, the rectum being partially or wholly deficient.—Of this form the table furnishes 26 instances, 21 males, and 5 females. 2. Anus opening into a cul-de-sac, the rectum being partially or wholly deficient. —Of this the table includes 31 cases, 17 males and 14 females. 3. Imperforate anus in the male, the rectum being partially or wholly deficient, and communicating with the urethra or neck of the bladder.—Of this the table contains 26 cases. 4. Imperforate anus in the female, the rectum being partially deficient, and communicating with the vagina.—Of this the table furnishes 11 cases. 5. Imperforate anus, the rectum being partially deficient, and opening externally, in an abnormal situation, by a narrow outlet.—Of this form the table contains 6 cases. A few other congenital deviations have been observed, but they are of very rare occurrence, and the five forms enumerated above are alone included in the table. The author briefly relates a case of fecal fistula, passing from the back of the sacrum to the rectum, which fell under his own observation. After briefly reviewing the causes of these malformations, and showing that, though in most instances consequent on an arrest of development, they sometimes result from a pathological change due probably to inflammation occurring during intra-uterine life, the author notices the relations of the peritoneum to the bowel in the different forms of atresia, as having an important bearing on the operations performed in the perineal region, and states that in several instances in the table the fatal result was due to the opening made in the serous sac. He also calls attention to an imperfect development of the pelvis in those cases in which the rectum is wholly deficient. 1. The 26 cases in the table of the first form furnish the following results: In 14 cases the gut was opened in the anal region, and in 12 the operator failed to reach it. Of the former, 9 ended fatally and 5 proved successful. Of the 12 cases in which the gut was not reached, 2 ended fatally without anything further being done. In 7, colotomy was performed in the groin; 1 only proved fatal. In 3, the colon was opened in the lumbar region; 1 recovered and 2 died. The author gives some particulars of the 5 successful

cases, and notices that there is only 1 of complete success in which the rectum was wholly wanting. In 3 of the cases in which the bowel was simply incised, more or less difficulty was experienced afterwards in maintaining a free passage for the feces, but in 2 of the cases subsequent contraction was prevented by drawing the bowel down to the anal region. 2. In 16 of the 31 cases of the second form the gut was reached and opened. In 11 the operator failed in finding it. Of the former, 6 were fatal and 10 recovered. Of the 11 cases in which the gut was not reached, 6 ended fatally without any further operation. In 2, colotomy was performed in the groin with a fatal result. In 3 instances the colon was opened in the loin; 2 were fatal and 1 recovered. In 4 cases colotomy was performed without any previous subpubic operation; three times in the groin with successful results, and once in the loin with a fatal termination. In analyzing the 10 cases of success after a subpubic operation, the author shows that in several cases in which the septum was slight the passage was readily established; that in others, where a space of some extent intervened between the two ends of the bowel, great difficulty was experienced in preventing contraction, unless the bowel was drawn down and attached to the skin, and he gives the particulars of a case treated by himself in this way with complete success. 3. The author adduces some cases of the third form, in which the communication between the rectum and urethra being more free than usual, life has been preserved for many months, the feces escaping entirely by the urethra, until the passage becoming at length blocked up, death has ensued. Of the 26 cases in the table the gut was reached in 15; in 9, the operator failed to find it. Of the former, 9 recovered and 6 proved fatal. Of the 9 cases in which the gut was not reached, 7 ended fatally without any further operation. In 1 colotomy was performed in the groin, in the other in the loin; both ended fatally. In 2 cases no attempt was made to reach the bowel from the perineum, but the colon was opened in the loin. One did well, the other died. In 7 of the successful cases treated by incision more or less difficulty was experienced afterwards in maintaining the passage. In the only case in which the bowel was drawn down and secured to the skin no contraction took place, and the boy was well and thriving at five years of age. After the establishment of a passage at the anus the escape of feces by the urethra did not always cease, and several instances are given in which serious inconveniences resulted from non-closure of the abnormal communication. 4. The author, after alluding to instances of persons born with imperforate anus, the rectum opening into the vagina, who have passed through life submitting to the annoyances consequent upon it, states that the recto-vaginal communication is not always sufficient, and that obstinate constipation sometimes ensues. As the rectum descends low in the pelvis in this form, the operator cannot well fail to reach the bowel. In all the 11 instances in the table the gut was opened, and only 1 ended fatally, from over-distension of the rectum, consequent on the operation having been delayed too long; 8 of the 10 remaining cases are reported as successful, and 2 as unsuccessful, owing to the tendency to contraction and neglect by the parents of the means recommended to maintain the passage. In one of the successful cases the bowel was drawn down and secured to the skin. The author gives the particulars of two cases which came under his notice, one successful, the other unsuccessful. In this malformation the establishment of a new passage at the natural site is not all that is required. We have also to obtain the closure of the abnormal communication with the vagina. A case in which this opening is reported to have closed spontaneously is the only one of complete success in the table. The author is unacquainted with a single case in which, after the formation of an artificial anus, a successful operation has been performed for the closure of the recto-vaginal aperture. 5. Of the fifth form there are 6 cases in the table—4 males and 2 females. In the males the abnormal outlet was in the perineum, just behind the scrotum, in 2, in 1 in the scrotal raphe, and in 1 anterior to the scrotum. In the females the opening was in the perineum, close to the vagina, or at the posterior commissure of the vulva. In all the cases the vent was insufficient, and defecation more or less difficult. In this form, as in the last, the rectum can be easily reached, and it was opened in all six cases. Two different operations have been practised to remedy this imperfection: 1, the enlargement of the original outlet,

which was done in two instances; and 2, the establishment of a new anus at the natural site, which was performed in the four other cases. The author, after giving a detailed account of one of the cases in which he had recourse to the latter operation, contrasts the advantages of the two methods. In cases of imperforate anus, in which a passage is successfully established, the retentive functions of the bowel generally exist in sufficient force. Satisfactory evidence on this point is furnished by several of the cases in the table, and the existence of an external sphincter has been frequently recognized in dissection. The author, after noticing that in cases of imperforation unremedied by operation, death is sometimes caused by extreme distension and rupture of the colon or the terminal pouch, remarks, that the most common causes of death after operation are peritonitis and diffuse inflammation of the areolar tissue. The former is generally produced by a wound of the serous membrane, the latter by the passage of fecal matter through the tissues of the pelvis, both being chiefly due to faulty methods of operating. He condemns the use of a trocar as a most unsafe instrument, and advocates the plan of drawing down the bowel and attaching it by sutures to the margins of the wound in the skin, an operation first performed by Amussat in 1835, and since described and recommended by Dieffenbach. The important advantage obtained by it is the securing a lining of mucous membrane for the passage traversed by the feces. By this means we guard, not only against the tendency to contraction, with its consequent miseries and dangers, but also avoid the early risks of inflammation and fecal absorption. In some instances troubles in defecation have continued after a sufficient passage for the feces has been fully established, owing to an organic change in the bowel, consequent upon an obstruction of long continuance, subsisting after the removal of the cause. The author gives an account of some dissections in which the muscular coat of the rectum was found remarkably hypertrophied and its mucous follicles enlarged, and states that when the vent for the feces has long remained insufficient, and the bowel has undergone these changes, its expulsive functions become seriously impaired and weakened, and the infant consequently suffers in the same way as adults labouring under stricture of the rectum. Having investigated the results of the operations performed in the perineum, the author proceeds to inquire into the degree of success which has followed the operations for opening the colon in the groin and in the loin, to ascertain the inconveniences consequent upon an anus in these regions, and to estimate the comparative value of the two operations. Colotomy was performed in 21 of the cases in the table —in 14 by the inguinal operation, and in 7 by the lumbar. In 9 of the former an unsuccessful attempt had been made to reach the gut from the perineum—4 proved fatal, and 5 recovered. Of 5 cases in which no previous operation had been performed, 1 only proved fatal, and 4 recovered. Of the 9 recoveries after inguinal colotomy, 1 survived only a month, 2 died of cholera within fourteen months, and a fourth was doing well at seventeen months; a fifth survived three years, and a sixth was doing well at thirteen years of age. M. Rochard has recently given an authentic report of the remaining three. One died at the age of 43; the two others are alive and well—one at 46 years of age, the other at 43. Of the 7 cases in which colotomy was performed in the left loin, attempts had previously been made to open the bowel from the perineum in 5, of which 3 were fatal. In another fatal case an attempt was made after the lumbar operation. The author relates the particulars of a case operated on by himself, in which death was caused by injuries inflicted in the perineal operation before the infant came under his care. Of the two recoveries after lumbar colotomy, one infant lived to the age of 7 years, and of the other there was no report more recent than seven weeks, and the child is supposed not to have long survived. The author considers the two operations in reference chiefly to three questions —the difficulties of the operation, its dangers, and the condition and convenience of the artificial anus. The operation is admitted to be one of greater difficulty in the loin than in the groin; and after remarking on some of the causes of this, the author notices the irregularities in the disposition of the colon, which render it impossible to open the bowel in the left loin without wounding the peritoneum, and which prevent the operator finding the colon in the left groin. The author practised both operations on the bodies of twenty infants, and in two he was

unable to open the colon in the left groin, in consequence of the colon making a sharp curve and passing over to the right side before reaching the pelvis. In six subjects lumbar colotomy was impossible without opening the peritoneum, owing to the colon being attached by a distinct mesentery and being loose in the abdomen. This serious impediment once occurred to the author in performing lumbar colotomy in a case of imperforate anus. In respect to the dangers of the two operations, the results of the cases in the table are much in favour of colotomy in the groin. The author quotes the description given by Rochard of the condition of the anus in the groin in two patients, who had been operated on many years previously. Both were in good health, and suffered very little inconvenience. One had married and borne children. In all the patients observed by Rochard, prolapsus had taken place from the lower part of the bowel, but it was easily restrained. The author also gives a particular description of a case, which has recently come under his own notice, of an artificial anus in the loin in a boy eight years of age, born with an imperforate anus, the rectum opening into the urethra. The anus was sufficient, but feces escaped occasionally into the lower part of the bowel and caused difficulty in micturition. To obviate this difficulty, he had suggested the lodgment of a sponge-plug in the lower opening. The author sees very little to justify a preference for either operation on the ground of the position of the anus; but the greater difficulties and dangers of lumbar colotomy would induce him in future to select the inguinal operation. The author controverts the views recently advanced by Nuguier in favour of the performance of colotomy in the right groin in preference to the left, and shows by several examinations of infant subjects that the passage of the colon from the left iliac fossa to the right fossa is not so constant as he states. The author, in conclusion, gives particular directions for conducting the operative treatment of imperfections of the rectum based on the results of this inquiry.—*Med. Times & Gaz.*, Aug. 18th, 1860.

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38. *Treatment of Hæmorrhoids.*—M. NÉLATON, in a recent clinical lecture, makes the following remarks:—

"I was some time since a great partisan of the actual cautery in hæmorrhoids, at least since it could be employed under conditions formerly impossible. In fact, nothing can be more painful than its application. I have seen cauterization employed many times by Dupuytren, who first excised the tumour and then cauterized; but so terrible were the sufferings of the patients, that I could scarcely have made up my mind to have recourse to it, had not the means of preventing pain by chloroform been discovered. I have since then frequently had recourse to cauterization with the best results; and if I do not employ it now it is because we have at our disposition another operative procedure, which is just as good, and which is not painful either during or after its application. I mean *écrasement linéaire*. It is usually unattended with hemorrhage, and when, as is sometimes the case, there is a certain amount of bleeding, this may at once be arrested by means of a powerful hemostatic, the perchloride of iron. The union of these two means, then, constitutes an excellent method for the ablation of hæmorrhoids.

"One word about ligatures. All surgeons at the end of last century and the beginning of the present were very fearful of applying them, owing to an instance of fatal hemorrhage which occurred after the application of the ligature by J. L. Petit. I believe I am right in affirming, guided by the cases related by Amussat, and by those which have occurred in my own practice, that these surgeons entertained the most erroneous notions concerning the results of the ligature employed for hæmorrhoids. It is an excellent operation, by means of which patients may be cured in eight or ten days without any accident; and, indeed, I may place it on the same line with *écrasement linéaire*. The latter has, however, the indubitable advantage of causing the fall of the tumour within a few minutes, although perhaps it offers somewhat less security against hemorrhage.

"There is one thing to be well borne in mind—viz., that all these operations practised in the vicinity of the anus, however simple they may be in appearance, may terminate in a fatal manner. This is a powerful motive for insisting

as long as possible on palliative treatment, only performing an operation as a last resort. Quite recently, one of our leading surgeons applied a small portion of Vienna caustic to a hæmorrhoidal tumour, and the patient was dead next day; while in another case, an incision made into a fistula scarcely a centimetre in length, was followed in a few days by fatal purulent infection. I was myself consulted some years since by a man who, having acquired great wealth, complained bitterly of not being able to enjoy it in consequence of a hæmorrhoidal tumour. I advised him to bear with it, but some time after abundant hemorrhage having come on, he entreated its removal. He manifested all the signs of complete anæmia. He was put under the influence of chloroform, and the actual cautery was employed. He did not suffer during the operation, but scarcely had he recovered consciousness when he complained exceedingly. I appeased the pain and all seemed doing well, when on the sixteenth day violent shivering ushered in purulent infection, and he died. The conclusion to be drawn from all this is, that you should never operate except when you cannot possibly avoid doing so, since when you least suspect it you may meet with sinister events similar to those just adverted to.

"One more word with respect to *écrasement linéaire*. This operation has during some time been frequently resorted to; and it is for this description of tumour it is perhaps best adapted. But I ought to inform you that in most cases the operation is badly executed. For a short time after its performance the patients are delighted, and the surgeon believes that he has attained a splendid result; but in the course of a few months the cicatricial tissue contracts, and the patients suffer from an anal stricture. During about a twelvemonth I have had a great number of patients, who have come to me in order to undergo an operation for the relief of this unfortunate consequence of removal of hæmorrhoidal tumours—the stricture sometimes scarcely admitting the passage of a quill. It has arisen because not only the mucous projection which alone constitutes the disease has been removed, but also a more or less considerable portion of the skin of the orifice of the anus."—*Brit. and For. Med.-Chir. Rev.*, July, 1860, from *Gazette des Hôpitaux*, 1860, No. 23.

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39. *Salivary Calculus in a new-born Child.*—M. Jules Cloquet read to the Academy of Sciences an account of a case of this, which had been communicated to him by Dr. Burdel, of Vierzon. A child, three weeks old, was taken to Dr. B. by the mother, who said that her infant could not suck, and requested that the frenum linguæ might be cut. On examination, Dr. B. found the frenum sufficiently free, but he observed that the tongue was considerably raised up by an excessive enlargement of the submaxillary gland. On careful examination he detected the presence of a salivary calculus, which he removed, after which the child took its mother's breast readily.—*Gazette Médicale de Paris*, 26 May, 1860.

OPHTHALMOLOGY.

40. *Glaucoma and its Surgical Treatment.*—Mr. J. W. Hulke read a paper on the subject before the Royal Medical and Chirurgical Society, June 26, 1860.

The author refers to a paper "On the Morbid Anatomy and Pathology of Glaucoma," communicated by him to the Society in December, 1857. Since then, the treatment of glaucoma by "iridectomy" has been extensively practised in the Royal London Ophthalmic Hospital and in private, and the results have been so very successful that the author is desirous of bringing the operation under the notice of the Society. In order to prevent any misunderstanding respecting the nature of the cases in which he advocates the performance of iridectomy, Mr. Hulke gives an outline of the symptoms, the ophthalmoscopic signs, and the morbid anotomy of glaucoma. There are two forms of this disease—an acute, and a chronic; but many cases have an intermediate character.

In 75 per cent. or more of all cases, the active stage is preceded by a premonitory period—"prodroma." In acute cases the transition is abrupt; in chronic cases it takes place by insensible gradations. *Premonitory symptons.*—Rapidly increasing presbyopia; the appearance of a coloured halo round the flame of a candle; the spontaneous appearance of flashes and other spectra. Intercurrent obscuration of vision, attended with vague orbital and frontal pains, slight hardness of the eyeball, and contraction of the field of vision. The pupil is large and sluggish; the size of the anterior chamber is much diminished. The duration and intensity of these symptoms are very variable, but they are rarely absent. *Acute Glaucoma.*—The active stage sets in as a sudden and violent outbreak, often at night. Violent racking pain in the eyeball, often attended with sickness, and followed by rapid extinction of sight. The pupil is widely dilated and motionless; and the lens has sometimes the peculiar greenish tint which was formerly considered so characteristic. The ciliary vessels are swollen; the conjunctiva is red and often chemosed; the globe is very hard; the cornea is dull, and its sensibility is lowered. Remissions are followed by fresh paroxysms, and complete irremediable blindness always ensues. *Chronic Glaucoma.*—The premonitory period slowly glides into the active. The obscurations, which were at first evanescent and separated by long intervals, become more frequent, and last longer. The contraction of the visual field progresses. The tension of the globe increases. The iris becomes dull; the aqueous humour turbid; the cornea dimned and flattened. Mr. Hulke lays stress on the flattening of the cornea, which is easily demonstrated, because it has been recently stated that the cornea becomes conical in glaucoma. *Ophthalmoscopic Signs.*—Excavation of the optic nerve entrance, and pulsation of the retinal vessels. To these capillary apoplexy of the retina is often added; and sometimes there are small bloodclots in the vitreous humour, which is unnaturally firm. It is only late in the disease, when all the component structures are undergoing atrophy, that the vitreous humour becomes fluid. *The Nature and Causes of the glaucomatous Process.*—All the leading features of the glaucoma are due to excessive tension of the eyeball from a superabundance of fluid within it, which distends the vitreous humour. This fluid—serum—is derived mainly from the choroid. Many circumstances show that the retina is only passively concerned. Glaucoma might be considered a serous choroiditis. Mr. Hancock has advanced the theory that spasm of the ciliary muscle forms an essential part of glaucoma. The author has, however, found complete atrophy of this muscle in dissections of glaucomatous eyes; hence the inference that this muscle is concerned in maintaining the glaucomatous condition. The author has been unable to trace any connection between glaucoma and gout or rheumatism. Some other diseases and injuries of the eyeball occasionally assume a glaucomatous type. This is especially the case with wounds of ciliary region and sclerotico-choroidal staphyloma. *Treatment.*—Generally the age and broken health of the subjects of glaucoma forbid antiphlogistics; venesection is inadmissible; leeches and counterirritants are useful as adjuncts, but cannot alone cope with the disease. The excessive tension of the globe is suggestive of the evacuation of some of the superabundant fluid by tapping. The old Surgeons, Antonius, Nerck, Jobus á Meckren, and others, were familiar with this operation, but they practised it chiefly in hypopion, onyx, and hydrophthalmos. Wardrop (*Med.-Chir. Trans.*, 1813) tried it extensively. With a view to lessen fulness and congestion, he tapped the anterior chamber in superficial and deep-seated inflammations of the eye. The operation was at first warmly taken up by other surgeons, but soon fell into disuse. In our own day it has been strongly advocated by Desmarres, but it has found little favour with English Surgeons, though most have occasionally performed it. In glaucoma the relief that paracentesis corneæ affords is too transient to render it of much value. Paracentesis scleroticæ has been practised by Desmarres and Hancock in glaucoma, though with different objects. Mr. Hulke reverts to this, after fully describing the operation of iridectomy as proposed by Dr. A. von Graefe. *Iridectomy* consists in excising a segment of the iris, in its whole breadth, from the pupillary margin outwards to its insertion. This is effected through an opening of corresponding size at the extreme edge of the anterior chamber. Iridectomy may be practised at any part of the iris.

Graefe usually makes it outwards: but adds that, when desirable for the sake of appearance, it may be made upwards. This latter position has been adopted by Mr. Bowman, and is that which Mr. Hulke has generally chosen. By removing the iris in this manner, the pupil is at once enlarged up to the corneal incision, which forms, as it were, the base of a coloboma iridis, and the edge of the lens, with the suspensory ligament, stretching in front of the vitreous humour and the ciliary processes, are exposed to view. The little blood which oozes into the anterior chamber from the cut edges or surface of the iris, should be at once pressed out or removed with a scoop. The after-treatment is very simple. A light compress may be applied for a short time as a precaution against hemorrhage. This may be replaced after an hour or two by a piece of wet rag. The room should be shaded. Usually nothing else is necessary. At first the aqueous humour trickles away; but the corneal wound soon heals, and the anterior chamber fills again. The hardness of the eyeball is at once lessened, and a natural tension is gradually attained; the pain abates, and soon altogether disappears. As regards vision, the ultimate results are intimately dependent on the period at which the iridectomy is performed, being more perfect where it has been early undertaken than where it has been postponed. In the premonitory period, where the symptoms are well marked, the propriety of operating cannot be doubted. In acute glaucoma, where the operation is done during the first inflammatory attack, or soon afterwards, vision is very completely restored. In chronic glaucoma, the results are less uniform and less decided. This is in consequence of the insidious nature of the disease—structural changes in the retina creeping on *pari passu* with the gradually increasing tension. *Alleged Objections to Iridectomy.*—1. Its reported uniform failure in the hands of some surgeons. This is in great probability to be generally attributed to its having been practised in cases which were not true instances of this disease. Many failures have proceeded from its having been done at far too late a period. 2. The great difficulty of the operation. This has been much magnified. It does not require more skill than most surgeons possess, and when chloroform is used it becomes really a simple matter; but even were it difficult, which it is not, in the absence of other known means of cure, we should be no more justified in rejecting it on this account, than we should be in refusing a patient the benefit of herniotomy where the taxis and other measures had failed. 3. The disfigurement produced by the coloboma iridis is so slight that it cannot constitute a real objection. 4. Its supposed injurious action on accommodation. Further experience has corrected some misimpression which at first prevailed respecting its influence on the adjustment of the eye. The previously existing presbyopia is not increased by removal of a portion of the iris; indeed, the refracting power of the globe sometimes actually increases after iridectomy—probably, as Graefe has shown, in consequence of the flattened cornea resuming its natural curvature. To avoid these alleged disadvantages, paracentesis scleroticæ has been advocated by Middlemore, Desmarres, and Hancock, as a substitute for iridectomy. Middlemore proposed to evacuate the turbid, diffluent, vitreous humour with a grooved needle, and to replace it with a syringeful of clear water. But, except in very old cases, the vitreous humour is much too firm to flow out along a grooved needle; and probably few English surgeons would adopt Desmarres' suggestion, of introducing a probe and breaking it up. Mr. Hancock, considering a spasm of the ciliary muscle to be an essential part of glaucoma, divides this muscle by striking a knife through the ciliary region backwards and inwards towards the axis of the globe. But Mr. Hulke has demonstrated, by microscopical examination, advanced atrophy of this muscle in many glaucomatous eyeballs; whence it follows that the ciliary muscle is not actively concerned in maintaining the glaucomatous process. In all probability, the success of Mr. Hancock's operation is solely due to the draining away of some of the superabundant fluid. According to this view, it is simply a peculiar mode of paracentesis, and cannot rank as a substitute for iridectomy until it has been thoroughly established that it permanently relieves excessive intra-ocular tension, which, in common with most surgeons, Mr. Hulke has found that tapping the vitreous humour fails to do.—*Med. Times & Gaz.*, July 21, 1860.

41. *On Glaucoma and the Optic Papilla.* By WILLIAM MACKENZIE, M. D., of Glasgow.—I long since[1] established to my own satisfaction the three following conclusions regarding glaucoma:—

1st. That the sea-green appearance behind the pupil, whence the name arose, does not depend, as was once generally supposed, on any thickened or discoloured condition of the vitreous humour, but on a diplochromatic state of the crystalline, by which it absorbs the extreme prismatic rays, and reflects the middle ones.

2d. That the vitreous fluid in glaucoma is superseded by an unhealthy secretion, which over-distends the eye, makes it feel hard, causes severe pain by pressing on the ciliary nerves, and obliterates the sensibility of the retina: a state of matters which I found to be susceptible of relief by paracentesis of the eye, through either the sclerotica or the cornea.

3d. That in advanced cases, the optic nerve behind the eye shows itself, on dissection, in a state of atrophy, deprived more or less of its proper nervous substance, and flattened.

Ophthalmoscopic investigations have added some new facts to our knowledge of glaucoma. One of these is the pulsation of the arteries of the retina; and another, the concave or excavated state of the papilla of the optic nerve. Neither of these phenomena, however, is peculiar to glaucoma; both of them being occasionally met with in other diseases of the eye. The former of them seems to indicate an increased resistance to the flow of blood in the vessels which supply the retina; the latter may be regarded as the effect of one or other, or both, of two different causes, namely, the atrophied condition of the optic nerve, and the increased pressure on the internal parietes of the eyeball, from the superabundant secretion which occupies the place of the vitreous humour.

These phenomena can scarcely be discerned in the advanced stages of glaucoma, owing to the diplochromatic and muddy state of the crystalline. To see them, then, the student should be directed to examine a case, in which the dioptric media have as yet lost but little of their normal colour and transparency.

To discern the pulsatory movement of the vessels, requires a sharp and experienced eye, and the observer will find it of service, while directing his attention to this point, to have the patient's head supported, and the diseased eye steadied by the fingers of an assistant.

If the indirect or inverted method of ophthalmoscopic observation be selected, an optical deception is apt to bewilder a beginner, as to the condition of the entrance of the optic nerve, a nearly circular spot, though not unfrequently oval, variable in size, but measuring on an average 0·6 line in diameter, and which, although styled *papilla* or *colliculus*, is, in its normal state, nearly level with the retina, and even a little depressed in its centre. In the direct method, where the observer regards the illuminated non-inverted fundus oculi through an aperture in a concave mirror, without the aid of any extraneous lens, the great magnifying power of the cornea and humours of the patient's eye, gives to the papilla an apparent magnitude larger even than that of the pupil; but in this way, it cannot be well seen as a whole, and generally requires the eye of the observer to be brought inconveniently near to that of the patient. Instead, then, of using the patient'e eye as a powerful single microscope, in actual contact with the objects on the fundus oculi to be examined, and thus viewing them directly, it is better to obtain a smaller but more defined image, although an inverted and virtual one, of those objects, by converting the patient's eye for the time into the object-glass of a compound microscope, which we do by holding in front of it a thick convex lens. The image which we then see of the several parts of the fundus oculi is an inverted one, like that of an object examined with an ordinary compound microscope; the entrance of the optic nerve is seen towards the temple instead of the nose; the macula lutea appears to the nasal side of the optic nerve instead of the temporal, and a little below the level of the nerve instead of above it; while the principal trunks of the retinal vessels, instead of branching in the direction of the temple to embrace the macula lutea, seem to bend to-

[1] See a paper "On Glaucoma," in Glasgow Medical Journal for August, 1830, and the different editions of my "Practical Treatise on the Diseases of the Eye."

wards the nasal side of the eye. The apparent position, in fact, of all the objects on the fundus, viewed in this way, is the reverse of their real position.

The most important optical deception which arises from viewing the fundus in the indirect method, as well as the most puzzling to a beginner, affects the papilla. The student has probably heard, that the papilla, in the glaucomatous eye, is cupped or excavated, but to his view it appears quite the reverse, it appears rounded and prominent.

To comprehend clearly that this is an illusion, all that one requires to do, is to impress with the head of a pin, a small dimple on a bit of paper, and put this under a compound microscope, with the concave side of the impression uppermost. The same appearance will then be seen, which is presented by the papilla of the glaucomatous eye, namely, that of a rounded and protuberant surface.

This optical deception arises from the inversion which the image suffers by being viewed through the compound microscope. We judge that an object, viewed with a single eye, is convex or concave, solely by the manner in which light is reflected from the body under examination. The light which falls obliquely on a convex surface illuminates that side which is nearer to the source of light; the side further from it is in shade. The light which falls obliquely on a concave surface illuminates that side which is farther from the source of light; the side nearer it is in shade. Let the source of light remain in the same position, but invert the image of the object illuminated, so that the light which falls on the farther side of it may seem to fall on the near side, which is the case when we look through the compound microscope at the hollow on a bit of paper, or when we examine the optic papilla through the compound microscope formed for the occasion by the patient's eye *plus* the convex lens held in front of it; and both the dimple on the paper and the papilla, although they are actually cupped or concave, will then appear convex and prominent.

If, on the other hand, we turn the convex side of the dimple on the paper uppermost, and view it with the compound microscope, it appears concave. The inversion of its image causes the light which falls on its near side to appear as if it fell on its farther side, and thus the eye is subjected to a deception the reverse of the former, and from which it cannot free itself. If there be cases, then, in which the end of the optic nerve within the eye actually projects in a convex form, they will offer, when examined in the indirect method, the appearance of a cup or depression.

Such facts have long been familiarly known; the apparent transmutation of an intaglio into a cameo, or that of a cameo into an intaglio, under the compound microscope, being a common source of amusement, fully discussed by Sir David Brewster in his *Letters on Natural Magic*, Letter V. Important as their bearing is on pathological examinations of the eye, they seem to have escaped the notice of ophthalmoscopists, till attention was directed to the subject by Dr. A. Weber, in a paper in the *Archiv für Ophthalmologie*, Band II., Abtheilung I., Seite 141.

In a highly interesting communication in the same journal (Band IV., Abtheilung II., Seite I.), Dr. H. Müller has directed attention to the normal, as well as to several diseased states, of the optic papilla.

His account of the entrance of the optic nerve into the eye, and the diagram which he gives in illustration, tally remarkably with the thirteenth figure in Mr. Bowman's "Lectures," and the corresponding explanation. From the statement and figures of these two observers, especially those of Dr. Müller, it may be gathered that the lamina cribrosa is normally somewhat concave towards the interior of the eye; that the fibres of the optic nerve, suddenly losing their white substance and dark outline, enter the eye on a level with the chorio-capillaris; that at this point the whole nerve, from the change which its fibres have just undergone, is considerably and rather suddenly reduced in thickness; that the fibres, bending more or less abruptly outwards, and spreading around, become clothed by the exterior or radially disposed layers of the retina; that the edge of the opening through which the nerve passes into the eye, as well as the fibres themselves as they traverse that edge, form a slight elevation or approach to a papilla, leaving in the situation where the trunks of the central vessels of the retina generally make their appearance, a small foveola.

Dr. Müller points out the difficulties which attend the anatomical examina-

tion of this depression, arising from the softness of the part, and its liability to change on being touched; and shows how these difficulties may best be obviated. He directs attention to the varieties which exist in different individuals; varieties in the depth of the depression, from 0.2 to 0.5 millimetre; varieties in its form and position, for it is not always symmetrical, and does not always correspond to the middle of the nerve, but is sometimes considerably nearer to the macula lutea, or has one portion of its edge more raised than the rest; varieties in the disposition of the vessels, for while the large trunks generally emerge from the middle of the foveola, one or more sometimes seek a passage for themselves close to the edge of the chorio-capillaris, so as to make their appearance by the side of the nerve; facts, all of which should be carefully borne in mind by ophthalmoscopists.

In regard to abnormal prominence of the papilla, Dr. Müller shows, that this is likely to arise from an atrophied state of the exterior layers of the retina, a thickened condition of the primitive nervous fibres, as well as infiltration of the nerve by blood, inflammatory exudation, or new formations. He relates a case in which a concretion in the site of the lamina cribrosa caused a protuberance of the papilla. The very earliest stage of encephaloid tumour should show an abnormal prominence of the papilla.

On the other hand, intro-ocular pressure, and atrophy of the nerve, existing either singly or in combination, are the causes of abnormal excavation of the papilla. In cases of intra-ocular pressure, either simple, or combined with atrophy of the nerve, paracentesis, either corneal or sclerotical, is likely to produce a change in the depth of the excavation, sufficient to be recognized on ophthalmoscopical examination.

Morbid excavation of the papilla varies in depth, reaching in extreme cases to a millimetre beyond the level of the choroid. In such cases the sides of the excavation are nearly perpendicular, or are even concave, and its edge, of course, impendent, so as partially, or even completely, to hide from view the course of the vessels as they pass from the bottom of the excavation and over its edge to the retina. In slight cases, the sides of the excavation are convex, and its form that of a funnel. The lamina cribrosa, under such circumstances, keeps its place, but in more advanced stages it is pushed back, and the excavation is much extended laterally. Such extreme cases of expansion are not the result of uncombined atrophy of the nerve, but must arise from the supporting resistance of the parts being weakened by previous inflammation, whence they come to yield more readily to intra-ocular pressure.—*Ophthalmic Hospital Reports and Jour. of the Royal London Ophthalmic Hospital*, No. XI.

MIDWIFERY.

42. *Delivery of a Living Child weighing upwards of eighteen pounds.*—Dr. A. MEADOWS, Assistant-Physician Accoucheur to King's College Hospital, relates (*Med. Times and Gaz.*, Aug. 4, 1860) the following remarkable case:—

"I was called on the 13th instant at 10 A. M. to Mrs. K., aged 35, who was in labour with her second child. She stated quite positively that she was at least a fortnight over time; and she fully expected to have twins, as she was such an enormous size, and had been greatly inconvenienced thereby for the last month. Fœtal movements had sometimes been so strong as to be quite painful.

The present labour began at 6 A. M., with pain which regularly increased up to the time of my visit. The membranes were still entire. On examination I found the parts soft; the os uteri dilated to about the size of a shilling, but I could not make out the presenting part, the child being still very high. By the abdomen I believed I detected the head at the fundus, with the back of the child looking forwards. Auscultation gave distinct evidence of fœtal life, for, notwithstanding Dr. Adams's disbelief in the use of the stethoscope in pregnancy, I am still disposed to have some faith in my own ears.

I left the patient, desiring to be sent for should any urgent symptoms arise. At 10 P. M. I made another examination, the labour having so far gone on steadily and well. The membranes were still entire. I now made out a breech

presentation. The os was well dilated and soft, the patient in good condition, and the pains regular and strong. The breech descended but very slowly, and seemed, notwithstanding powerful uterine action, much jammed in the pelvis. However, at 4 A. M. on the 14th, it had so far descended as to enable me to get a purchase on it with the fingers hooked round the groin, and with strong efforts I succeeded, at 5.30, in bringing down the breech and lower extremities. The cord was pulsating. Great difficulty was now experienced in extracting the head, but after some little force I had the satisfaction of bringing this down, and in a few minutes the child recovered and breathed comfortably.

All the lower part of the body and thighs were of a deep purple colour, as if violently bruised, but the child was otherwise well. The placenta was expelled in half an hour; and the mother subsequently did well.

I called five hours afterwards, and to my surprise found that the child had died suddenly about an hour before, while lying at its mother's side. No reason could be given for this, as a short time before it appeared quite well. No *post-mortem* examination was permitted. On weighing the child it was found of the enormous weight of 18 lbs. 3 oz. Its extreme length was 32 inches; the circumference of the head, $17\frac{1}{4}$ inches. These are *post-mortem* measurements. It was most perfectly formed and beautifully developed. The placenta was of proportionate size, and weighed 3 lbs."

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43. *On Some of the Exigencies connected with Preternatural Labour.*—Mr. Joseph T. Mitchell read (July 4) a paper on this subject, before the Obstetrical Society of London. He commenced by referring to the ill consequences which often follow the too strict adherence to the axiom in midwifery, that "meddlesome midwifery is bad midwifery." He set this forth by alluding to the history of cases that had come under his notice, in which the lives of some women had been placed in jeopardy, and the future comfort of others had been permanently destroyed, as well as of other cases, in which children had been born dead, whose lives would most probably have been saved had early manual or instrumental aid been applied. He then alluded to his strong objection to the use of the crochet in cases of craniotomy, and his custom in such cases to rely alone on the craniotomy forceps for delivering, relating a case that occurred in an extremely narrow pelvis in which the practitioner obstinately refused to use the embryotomy forceps, and would depend alone on the former instrument, by which he extensively lacerated the vagina, in consequence of its often slipping off from the head during the operation, which case terminated in the death of the woman, undelivered; the uterus having been ruptured, and the child having passed into the abdomen, when in all probability, had the embryotomy forceps been used, delivery would have been safely effected, as it had been on a former occasion. He next referred to the culpability which rests on every practitioner who undertakes to attend on any woman in her second or subsequent labour, who had previously been delivered by embryotomy or by the forceps, when the child had been born dead, without inducing premature labour between the seventh and eighth, or at the eighth month of gestation, as the nature of such former labours might seem to indicate. He related a remarkable case in which a practitioner had neglected so to act, and the complicated difficulties which followed, requiring the dismemberment of a very large child at the full period of gestation. The abdomen and chest were eviscerated, and then the lower half of the body was removed at the fourth dorsal vertebra, by which alone room could be obtained to reach the arms and head. The patient did well. She afterwards came under the author's care, and was delivered safely at premature periods on four different occasions, twice with great difficulty at seven months and a half gestation, and subsequently twice at six months and a half, on each occasion by inducing labour by puncturing the membranes, for which purpose he adopted a peculiar instrument, which he exhibited to the Society, and which instrument he had found useful also in rupturing the membranes in cases of placenta prævia attended with extreme circumstances. The instrument was made by Messrs. Millikin and Lawley, of the Strand. In the course of the relation of this case, the author stated that, on the occasion of the third labour, at seven months and a half gestation, when the head presented, delivery was effected by the forceps, and a child was born that lived fourteen hours; and on that of the fourth

accouchement, at the same period, when the arm presented, the woman could not be delivered except by dismemberment of the child. From these circumstances he deduced the conclusion that it was not wise to adopt the modern recommendation of delivery by turning in cases of small pelvic brims, whenever delivery can be effected by the forceps, as by that means a far greater chance would exist of delivering a living child than when turning is adopted. By the latter mode, the protracted pressure unavoidably made on the funis as the head is passing through the brim, is almost certain to occasion the death of the child; and in cases also where delivery can be effected by craniotomy, it is accomplished with less distress to the mother than by turning. The author also referred to the fatal consequences to children which often follow doubtful or incorrect diagnosis of presentations in early labour, especially in cases where delivery can only be effected by turning, which he showed in the history of a case in which there was the presentation of the abdomen, with the child doubled up, the head resting on the sacrum, and the hips on the pubis. In this position the practitioner allowed the case to remain for nearly three hours, not knowing the character of the presentation, and what it necessitated, the woman all this time suffering under violent expulsive labour, by which the child was killed; whereas, had turning been adopted at the commencement of this period, which would then have been a perfectly easy operation, the os uteri being then fully open, the child would, doubtless, have been born alive.—*Med. Times & Gazette*, July 14, 1860.

44. *Uva Ursi in certain Cases of Extremely Slow Labour.*—Dr. A. GAUCHET has proposed and employed the *uva ursi* in certain cases of tedious labours which are usually treated by ergot of rye. He calls attention to the dangerous consequences which sometimes follow the employment of the latter drug, and thinks that the *uva ursi* will be found equally useful, and at the same time less violent in its operation. He relates a case of tedious labour in which he administered *uva ursi*, four drachms of the leaves being infused in a pint of water, and a cupful of the infusion being given every half hour. The effect of the medicine was to increase the force and frequency of the uterine contractions, and the labour terminated a few hours after the first dose had been given. Dr. Gauchet gives another case of imperfect and irregular contraction of the uterus after labour, in which case the *uva ursi* seems to have had the effect of causing regular contraction of the organ, and the patient recovered without any bad symptom. Dr. Gauchet has also tried this remedy in nine cases of tedious labour, all of which terminated successfully, and he therefore believes that this new plan deserves the attention of practitioners.—*Brit. and For. Med.-Chir. Rev.*, July, 1860, from *Bull. Gén. de Thérap.*, June 15, 1859.

45. *Intra-Uterine Fractures.*—Mr. B. E. BRODHURST read a paper on this subject before the Royal Med. and Chirurg. Soc. (March 27, 1860). He commenced by referring to some points of distinction which have been observed in fractures in utero. He stated that fracture might be simple or compound—disunited or reunited at birth; or that solution of continuity might be owing to imperfect ossification and congenital rickets. Having alluded to these several varieties, he proceeded to remark especially on reunited fractures in utero; and he quoted cases from Ploucquet, Kopp, Devergie, Carus Schubert, Sachse, and Moffat; relating, also, the cases which had occurred in his own practice. The causes of intra-uterine fracture were lastly considered; and it was stated that neither contre-coup nor compression by the walls of the uterus could act so as to produce fracture, so long as the membranes—the chorion and amnion—remained entire; but there was reason to believe that intra-uterine fractures occurred as effects of physical injuries—that the origins of these fractures and of congenital distortions were similar, and that they were occasioned by abnormal muscular action. Two cases of congenital double club-hand and double club-foot were adduced as examples of the mode in which abnormal muscular action and distortion are induced in the fœtus; and, moreover, the author stated his belief that, in these cases, whether of fracture or distortion, the effect varies as the cause varies, and that temperament or other like condition may probably also modify the effect.—*Med. Times and Gaz.*, April 7, 1860.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

46. *Sudden Death, without any adequate Post-mortem Appearances.*—Mr. J. Z. Laurence, communicated to the Harveian Society (May 3, 1860), the following case and interesting remarks:—

"On the 24th of April, the housemaid in a medical man's family was sent out to fetch the beer, when, within ten minutes afterwards, she was found by the cook lying apparently dead in the scullery. I saw her myself in about another quarter of an hour. There was no action of the heart, no breathing, no sensibility; the body was still warm; the face livid and swollen. The only symptoms observed during life were that, for about a week before her death, she suffered from earache, appeared unusually indolent and stupid, and at times complained of faintness.

"*Post-mortem examination*, about twenty-two hours after death. The body was large, finely developed, very fat. Cadaveric rigidity was strongly marked in the limbs, and the firmly clenched lower jaw. The left ventricle of the heart was filled with dark fluid blood, and was firmly contracted; the right was flaccid and collapsed, containing but a very small clot. The muscular substance was apparently normal. The heart was altogether small in proportion to the body. The lungs were slightly congested. Between the two openings of the stomach was an oblong patch of fine punctiform florid injection in the lines of the rugæ. It contained an undigested meal of some stewed steak, of which the patient had partaken shortly before death. No poison of any kind was found in a careful analysis instituted by Mr. Rodgers, at the request of the jury. The intestines were not opened; their peritoneal coat was covered with congested veins, but in no very marked degree. The liver was somewhat congested. The spleen was soft and congested. The kidneys were very much congested. The uterus, ovaries, and Fallopian tubes, were much congested. (She was menstruating at the time of her death.) The superficial veins of the brain, as those of the medulla oblongata, were turgid with dark blood. There was a slight amount of serum beneath the arachnoid (which was somewhat opaque here and there), especially in the basilar fossa. The brain-substance itself was perfectly normal. The larynx, trachea, and œsophagus were healthy, and contained no traces of any food in them.

"*Remarks.*—This case is interesting in medical jurisprudence, in two points of view: first, for the unusual precision with which the entire suddenness of the death could be fixed; second, for the total absence of any *post-mortem* appearances usually found in cases of sudden death (such as heart-disease, bursting of aneurisms, etc.). In the *Annales d'Hygiène Publique* for 1838 will be found a paper by Devergie entitled 'De la Mort Subite,' in which, with other causes of sudden death, he signalizes that by syncope, which he had found to occur three times in forty cases. Dr. Tourdés reported to the scientific congress meeting held at Strasbourg in 1842, that he had met with this cause of sudden death once in twenty-six cases. It appears to be identical with the 'idiopathic asphyxia' of Chevalier. Devergie, in the paper above referred to, gives the following as the *post-mortem* appearances he found in his three cases of death from syncope. '1. The absence of all congestion of the organs. 2. The normal state of all the organs. 3. The existence of about an equal quantity of blood in the right and left cavities of the heart, regard being had to their respective sizes. 4. Perhaps the coagulation of the blood in the fibrinous state.' As another cause of sudden death, Devergie further indicates that arising from cerebral congestion, which may, he says, be limited to the meninges. In illustration of this, he relates the case of a man aged 63, who, having only complained of a slight headache in the morning, took a good breakfast, after which he slept for two hours, and, on awaking, suddenly died. No congestion of the brain-substance was found; there was an old apoplectic clot in the left corpus striatum; there was great congestion of the meninges of the brain and spinal cord.

"Directing attention now to the condition of the stomach in our case, we may naturally ask ourselves whether the undigested meal, or the patch of injection on its coats, may have had anything to do with the cause of death? As regards

the latter, no one would, I think, after the researches of Dr. Yellowly and others, attach any great independent value to mere vascularity of the gastric mucous membrane. The undigested meal may perhaps possess rather more significance. The deceased seems to have been in the habit of 'bolting' her meals very rapidly. The stewed steak found in her stomach, I am informed, she partook of stealthily —and therefore probably hastily—before her proper dinner, shortly before death.

"Dr. Taylor, at p. 152 of the second edition of his work on *Poisons*, has cited several instances of persons dying quite suddenly, with nothing to account for death but a distension of the stomach; but I noticed no such distension in the present case. We may not unreasonably connect these conditions of the stomach with the syncopal affection. Professor Weber has shown that irritation of the pneumogastrics will stop the heart's action; and my distinguished friend and colleague, Dr. Brown-Séquard, has further shown that crushing the semilunar ganglia has a similar effect on the heart, provided the great splanchnic and pneumogastric nerves remain intact.

"I should feel disposed to regard the present case as one of a mixed nature, presenting some of the signs of syncopal asphyxia, others of apoplexy. Explain it, however, as we may, it still remains one of considerable interest, proving as it does that, under certain (as yet very imperfectly understood) circumstances, death may occur suddenly, without leaving any traces at all adequate (in our present state of knowledge) to account for the fatal result."—*British Med. Jl.*, May 19, 1860.

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47. *Opium as a Remedy in Poisoning by Datura.*—Some years since, Dr. T. ANDERSON, Assistant Surgeon Bengal Army, propounded the doctrine that opium and belladonna exert an opposite influence on the human system, and thus one may be used to counteract the other, even though administered in a poisonous dose. He is also convinced that the converse doctrine must be true, viz., that opium will counteract the action of belladonna, and of all the solanaceæ with like properties, as the datura, hyoscyamus, &c. In support of this view he relates the following case:—

A Sepoy was found by his companions lying by the roadside near Furrackabad, in a state of high delirium, and was brought to the hospital boat. On inquiry, I learned that he had been seen partaking freely of sweetmeats (the Hindoo eats them by pounds weight at a time) in the Furrackabad bazaar, some hours before he was found; and the men at once ascribed his condition to poison administered in the sweetmeats. The many varieties of native sweetmeats poisoned with datura and bhang, one of the preparations of Indian hemp, are well known in all large Indian towns, and are used to cause death or stupefaction, so complete, as to allow of robbery or violence being committed; and a Sepoy, when in undress, usually displays valuable ornaments, sufficient to tempt a thief or thug. Even without this knowledge, the symptoms were so marked that I had no difficulty in forming my opinion of the cause of the patient's condition. I saw him immediately after he was brought to hospital, and found him in the following state: He was reclining on his back in bed, in a wakeful muttering delirium, unbroken by an interval of even transitory consciousness. His face was much flushed; the eyes were reddened and wandering, and the pupils were brilliant, widely dilated, and quite insensible to light. The pulse was much accelerated and small. He continually twitched his extremities, but especially his hands, and every now and then pinched and tugged at the bedding. Though utterly unconscious to real external objects, the brain was evidently active, with continual visions before the eyes, as his mutterings and frequent clutchings referred to imaginary objects. He was not in the least degree violent, and required no restraint, but merely an attendant to keep him covered during his restless tossings about.

He swallowed any liquid put into his mouth, but exactly as patients in delirium tremens do, in one convulsive mouthful.

In an hour after his arrival at the hospital, I began the administration of opiates, and prescribed one grain of the muriate of morphia in solution, to be given every hour, beginning the first dose at 2 P. M. I watched the effect most closely, taking the state of the pupil as my principal guide.

Eight doses were given before I could observe any result. After the eighth

dose, about 11 P. M., I noticed that his attention could be fixed for a moment, and that the muttering could be arrested by loudly talking to and shaking him; that the hands were less tremulous.

Still, no impression had been made on the widely dilated pupils, and he was evidently as wakeful as ever. I therefore, before retiring for the night, directed the continuance of the morphia until the morning, with orders to discontinue it so soon as sleep threatened to come on. I did not see him again till six in the morning, when I found all his delirium gone, the tremulousness much relieved, the pupils almost reduced to their natural state, and the patient surrounded by his delighted comrades, who were listening with wonder to the native doctor relating to them how "dhutona" poisoning had been cured by "apheem" (opium.)

Though he was able to talk, and was nearly well, I considered it advisable to persevere with the treatment until sleep had been obtained. This did not supervene until three doses more had been given.

After several hours' sleep, he awoke perfectly well; and after two days more detention in hospital, he was dismissed "fit for duty;" and while I remained with the regiment, was never again in hospital. In all, 15 grains of the muriate of morphia had been administered in 18 hours; and with reference to the largeness of the amount, I took care to inquire concerning the habits of this Sepoy, and found that he used opium in no form whatever.

In this case, as well as in the experiments published in my former paper on this subject, the amount of the narcotic used as the antidote, whether belladonna or opium, to restore the normal condition of the brain, would, by itself, have been a poisonous dose. This tolerance of the one poison, produced by the presence of the other poison in the system, seems to me to be a strong additional argument in favour of my theory.

It also induces me to go further, and to believe, that all narcotic poisons with distinctly opposite actions, and destroying life by their effects on the nervous centres, will, when present in the body together, counteract each other, until eliminated from the system by the excretions.

For example, the distinct coma-producing narcotics, such as opium, will, I believe, in all cases be counteracted by the poisonous solanaceæ; and, as a remedy to the action of strychnine, I would hope for success from the use of conia, or preparations of hemlock itself; and, of course, in all these cases the opposite would hold true.—*Edin. Med. Journ.*, June, 1860.

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48. *Study on the Slow Poisoning by Preparations of Lead, and of its Influence on the Product of Conception.*—M. Constantin Paul, an *interne* of the Paris hospitals, has drawn up a valuable memoir on the effects of lead-poisoning upon the product of conception. We will relate one of his observations as an example, and present a summary of his researches. In February, 1859, a woman entered the Necker Hospital, who had been for eight years working as a polisher of printing type. She was suffering from metrorrhagia, and had an evident saturnine cachexia. She had enjoyed good health, and had been delivered of three children, happily before taking to the occupation of polisher. Since then her health has been much shattered by lead-diseases. Three months after entering upon this trade she had a first attack of colic, and four years later another. At this time she became pregnant, and bore a dead child. Three years later still, she bore a child which died at the age of five months. She had eight pregnancies all terminating in abortion at two or three months, attended by excessive metrorrhagia. She recovered in M. Bouley's wards under tonic and restorative treatment.

This case led M. Paul to extended inquiries in the type-foundries and elsewhere. He found that those women almost alone who handle the type are affected by saturnine diseases. In a first series of observations, he found that 4 women had had 15 ascertained pregnancies—of these, 10 ended in abortion, 2 in premature labour, 1 in still-birth, and 1 child died within twenty-four hours.

In a second series of cases, 5 women had borne an aggregate of 9 children at term before exposing themselves to lead, and had had no abortion or other accident of pregnancy. Since exposure to lead they had 36 pregnancies; of these, 26 ended in abortion at from two to six months; 1 in premature labour; 2 in

still-birth; 5 children died, 4 of which within the first year; and 2 children were living, 1 being puny and ailing, the other only three years old.

In a third order, a woman had, during her employment in a type-foundry, five pregnancies, all ending in abortion. She quitted the business and bore a healthy child.

In a fourth order, is the case of a woman who, having left the trade for two periods, bore during these intervals of freedom two healthy children; returning to the trade had two abortions.

In a fifth series M. Paul shows that the same disastrous influence is felt when the fathers handle lead. In 7 cases, every woman had an abortion; of 32 pregnancies occurring during the husbands' exposure to lead, 12 children were born prematurely. Of 20 living children, 8 died in the first year, 4 in the second, 5 in the third, 1 after the third year, 2 remained living.

In a sixth series the author shows that where the lead affection was less marked there was a corresponding diminution of the injurious effect upon the product of conception.

M. Paul has not neglected to check these results by comparing them with the history of the general population. The general official vital statistics are not in our opinion entitled to unreserved confidence as an element in a scientific pathological inquiry; but there can be little hesitation in admitting that pregnancy, under ordinary circumstances, is much less frequently abortive than M. Paul has so clearly ascertained it to be amongst the population working in lead. —*Brit. and For. Med.-Chir. Rev.*, July, 1860, from *Archives Gén. de Méd.*, May, 1860.

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49. *Intra-Uterine Emphysema of the Lungs.*—Prof. HECKER relates (*Virchow's Archiv.*, 1859) the following very important case in reference to the medico-legal questions of live or still-births: During his residence at Marburg he observed the following circumstances: A primipara, aged twenty-two, was in labour at 3 A. M. of the 7th of March, having suffered light contractions for two days previously. The conjugate diameter was defective by an inch. The liquor amnii escaped at 11 A. M., the os uteri being now partially open. The pains were very inadequate, and at this time the fœtal heart, which had been hitherto plainly audible in the left side of the uterus, could no longer be heard. This was the state of things at 4 A. M. of the 8th, when the labour began to proceed rapidly, the child being born without assistance at five o'clock. It was born showing no trace of motion of the head, or of breathing-movement; no efforts at resuscitation availed, it was quite dead. The body was examined six hours afterwards. It weighed seven pounds. There was no trace of putrefaction. The lungs were of large circumference, filling the chest, partly covering the pericardium; they were brighter than usual, gray-red, and felt spongy. They floated freely in water; they were extensively emphysematous.—*Brit. and For. Med.-Chir. Rev.*, July, 1860.

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50. *Rape committed during Magnetic Sleep.*—A case of this is recorded in *La Presse Médicale de Marseille.* A girl, 18 years of age, believing herself to be sick, consulted a man who professed to cure diseases by animal magnetism. For some time she went to him daily. After about four months and a half she perceived that she was pregnant, and complained to the police authorities, who consulted Doctors Costa, Director of the School of Medicine, and Broquier, principal Surgeon, to give an opinion: 1st. Whether the girl was pregnant, and the period of utero-gestation, and, 2d. Whether she could be violated and made a mother against her will. These physicians ascertained that the girl was pregnant, and that utero-gestation had not advanced further than four or four and a half months, and, supported by the report made to the Academy of Medicine by M. Husson, in 1831, concluded since it is demonstrated that a subject under the influence of magnetic sleep is insensible to all tortures, it seems rational to believe that a young girl may submit to coition without voluntary participation in the act, without being conscious of it, and of course without being able to resist.

This opinion is concurred in by M. Devergie, of Paris.—*Gazette Médicale de Paris*, June 16, 1860.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of Twins, one of which was Born enveloped in the Membranes. By E. W. Woodson, M. D., of Woodville, Ky.—I was called, August, 1859, to see a negro woman who had given birth to twins. The second child was born enveloped in the unbroken membranes. The midwife who attended the case, supposing the child to be dead, deposited it in a vessel without rupturing the membranes, and set it away until I arrived, which was at least fifteen minutes after the delivery.

As soon as I entered the room she related what had happened, and presented the vessel for me to inspect. I at once ruptured the membranes and found the cord still pulsating. I removed the child and succeeded in resuscitating it by using friction, artificial respiration, &c. I allowed the cord to remain untouched as long as it pulsated. The child was perfectly livid and apparently dead when I commenced to work with it. The breathing was at first gasping and at long intervals, but finally became regular and quiet. The child lived and did well.

This case proves that our efforts should always be prompt and unremitting to bring to action the feeble spark of life in such cases, although the case may appear hopeless, and hence I report it.

Injury to the Face from the Kick of a Horse. By J. S. Conkey, M. D., of Antwerp, N. Y.—December 22, 1857, I was called to see Mr. J. R., aged 56 years, who had been badly injured by a kick from a horse. Found him bleeding profusely from the anterior and posterior nares; his nose completely flattened to his face, the ossa nasi being broken into fragments. On examining the case more closely I found a fracture of the superior maxillary bone extending from where the nose and upper lip meet to the throat, fracturing the septum narium and sphenoid bone, thus separating the whole palatine arch, which, including all the teeth, could be easily and freely moved about in the mouth.

After adjusting the nasal bones, and properly securing them in place, I fitted a piece of soft wood to the front teeth, letting the ends project a little from each corner of the mouth. To this piece of wood I applied a strong tape, and, passing the ends over the head, tied them firmly, thus completely securing the fractured portions in apposition. The bleeding was gradually stopped by the formation of coagula in the nose, which were allowed to remain till all tendency to hemorrhage had ceased. The case progressed favourably, and in four weeks the dressings were removed and the patient able to be out. In ten weeks from the date of the injury he was able to work on his farm, and could use his teeth for masticating purposes as well as ever. He now reports himself entirely well, and there is no deformity left.

DOMESTIC SUMMARY.

Caffeine in Opium-Coma.—In our preceding number, p. 212, will be found a case, by Dr. H. F. CAMPBELL, of narcotism from opium, in which caffeine administered by injection seemed to exert a beneficial influence. Dr. C. has since published (*Southern Med. and Surg. Jour.*, Aug. 1860) a second case, in which he has used this article, but with a less satisfactory result.

The subject of this second case was a man about 28 years of age, apparently of good constitution, who had probably taken nearly three ounces of laudanum fifteen hours before seen by Dr. C. At this time Dr. C. found the man entirely unconscious; face of a dark purple hue, as were also his hands and feet; the respiration not quite four to the minute, and obstructed by accumulation of mucus; pulse feeble, about 100; muscular system completely relaxed.

"The condition of the patient," says Dr. C., "the necessity of constantly provoking respiration, and also the little probability that any laudanum yet remained in the stomach, caused us to abandon the idea of using the stomach-pump. Emetics, of course, were out of the question, and we at once resorted to the application of ice to the scalp, and pouring ice-water, from a distance, upon the head, while we sent for a drachm of caffeine, and a small syringe. As soon as these arrived, we poured out in the palm of the hand what we supposed to be about twenty grains of caffeine, dissolved it in two ounces of cold water, and introduced it into the rectum by means of the syringe. The syringe being small, three applications were made at short intervals. The whole of the alkaloid was not dissolved. By an estimate made subsequently, calculating what had been lost, the patient had taken near *twenty-five grains of caffeine* in the three applications.

"The caffeine wss administered at twenty minutes before four o'clock, at which time, as we have said, the respiration of the patient was *scarcely four to the minute*, and constant efforts were necessary, in the way of slapping and shaking to provoke him to inspire. At fifteen minutes after four (35 minutes after the injection), his respiration was found to be effected with less effort and more regularity—and, on counting it by the watch, it numbered eight to the minute. The skin, even now, began to present less of the cerulean tint. In one hour after, the respiration had risen to twelve, and shortly rose to sixteen to the minute, when the skin was nearly of the natural hue, though the nails on both hands and feet remained still of a purplish cast.

"Slight spasmodic movements in the fingers were now observed, and also some occasional subsultus in the muscles of the forearm—the under lip, which before was hanging, now became elevated and slightly compressed against the teeth. When the hand of the patient was held, and an attempt made to extend the arm at the elbow, decided muscular resistance was observed. The lid of the left eye was also observed to be raised and let down rapidly once or twice.

"The pulse had now become full and somewhat resisting, and the action of the heart, as observed at the chest, tumultuous. On being raised, the patient, once, made a noise slightly resembling a groan, but, from the beginning to the end, he did not once manifest the least consciousness.

"For a short time after the improvement in the respiration began, the mucous rale seemed somewhat to diminish, and his breathing, were it not for a certain jerking, resembled very neary a man in deep, healthy sleep. The rale now, however (half-past 7 o'clock), became more and more obstructive, the gurgling reaching up into the throat and threatening momentarily to strangle the patient. It was now plain that he could not survive, and, on turning him upon the right side, a bloody mucus bubbled out of the nostrils. The number of the respirations was at this time twenty to the minute, when counted by the watch. The entire surface of the body was intensely hot and remained so to the time of the patient's death, which took place at fifteen minutes before nine o'clock P. M. He seemed to die from the accumulation of the bloody mucus in the bronchial tubes and larynx. During the whole time, from the first moment of our seeing him till the time of his death, the application of ice was made constantly to the

head of the patient, and also mustard plasters were applied to the spine and to the extremities.

"A superficial glance at the foregoing case might perhaps impress the reader with the conviction that the confidence which we expressed, in our former report, in caffeine as an antidote in opium-coma, was somewhat hasty and misplaced. A more deliberate consideration, however, will remove such an impression. When we reflect on the amount of the opium taken, the length of time during which the patient had been left to its toxic influence, and the destructive ravages which had been made during that time, we certainly, on the other hand, must feel great surprise at the amount of modification the caffeine was seen to produce under such disadvantageous circumstances. The respiration, in a space of time less than one hour, was raised from four to sixteen in the minute. The colour of the skin, under its influence, was changed from an almost indigo hue to that of the natural complexion, and the muscular relaxation was replaced by a fair degree of tonicity accompanied by occasional twitchings. The mode of death, too, was not such as is seen in the demise from the unmodified effects of opium, when the respiration becomes gradually slower and slower till it ceases altogether, but at the time of our patient's death, his respiration numbered twenty per minute, and he died apparently *drowned* by the accumulation of the viscid mucus in the air-passages, doubtless the result of the long-enduring pulmonary congestion occurring previous to the administration of the caffeine."

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Popliteal Aneurism successfully treated by Pressure applied in a Novel Manner.—Dr. T. Clarkson Moffat relates (*American Med. Times*, 14 July, 1860) the following interesting case of this.

"On the 22d of March, there came to the Seaman's Retreat, a coloured man —a sailor by profession, a native of Pennsylvania, aged 51 years. He had arrived from Calcutta in the previous month, and came to the hospital for the cure of rheumatism, with which he had been considerably afflicted for about eight months. He complained chiefly of the right knee-joint, which, he said, was very much swollen, especially behind, and for which he had been using a variety of remedies, both internally and locally. He had followed the sea for a great many years, and had been addicted to most of the vices which are common among men of his class. His complexion was that of a dark mulatto. He was about five feet ten inches in height, thick set, broad shouldered, and weighed about 180 pounds. The affection of the knee-joint was of about six months' standing—beginning first as a small tumour between the hamstrings, and gradually increasing without occasioning much inconvenience except stiffness. He attributed the difficulty to a wrench in lifting, at which time he experienced a sensation as of something giving way. He was found, on careful examination, to have a pulsating tumour in the right popliteal space, of the size of a large orange. On consulting with Dr. Isaacs, of Brooklyn, it was decided not to ligate the femoral on account of suspected atheromatous disease, but to try first the effect of compression as devised and successfully practised by Dr. Fountain. In a few minutes, with the aid of a carpenter, we erected a structure consisting of a stick of timber about four inches in thickness by eight in width—one end of which was secured to the top of an upright post of the same dimension. This post was fastened firmly to the floor, and lashed to the iron crossbar at the head of the bed. It was about six feet in height, and bevelled at the top to receive the stick first named; these were firmly nailed together. The large piece of timber about twelve feet in length rested at the lower end upon a strong table, placed at the foot of the bed, thus forming an inclined plane over the bedstead placed lengthwise underneath it. The patient was then placed upon the bed in the supine position, with his leg slightly flexed—somewhat everted—wrapped in thick layers of cotton, and placed in a long fracture box; a compress made of adhesive plaster wound tightly into a roll, about an inch in length, and three-eighths of an inch in diameter, was then placed upon the femoral at the inferior angle of Scarpa's space. Upon this rested the lower end of a perpendicular piece of wood about an inch square, the upper end of which was bevelled to meet the inclined plane before described.

"The pressure was commenced at eight in the morning. The degree of pres-

sure was regulated by drawing the upper end of the perpendicular down the inclined plane, to a greater or less extent, as might be required. The hand of the operator was kept upon the stick, and thus secured an equable pressure, even though the patient moved his limb, as he sometimes did a very little. A second compress and upright were placed over the artery as it crosses the horizontal ramus of the pubes, and when the pain from pressure in one was too great to be borne comfortably, the other was used, and thus alternately compression was kept up until five in the evening, when pulsation could be no longer felt in the tumour.

"The patient complained but little for the first two hours. Three doses of opium were given, which gave him so much ease that he slept somewhat before the operation was completed. Moderate compression was kept up for eight hours longer, after which the patient was kept for several days quietly upon his bed. The tumour, at first very hard and slightly tender, gradually diminished in size; his leg and foot, in which he had experienced benumbing and prickling sensations, gradually regained their natural feeling, and on the 20th of April following he left the Institution perfectly free from any trouble of the joint—with only a small walnut-sized tumour in the popliteal space. We have had no tidings of him since.

"The great simplicity of this plan of compression, which is always available, must be palpable to every one. That it is far easier for the patient, and unspeakably more so for the operator, cannot be questioned. It would also seem reasonable to infer that the compression itself, made at but one point, is more uniform and certain than has yet been secured by any other method."

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Fracture of both Femurs by Muscular Spasm.—Dr. F. D. LENTE records (*American Med. Times*, July 20th, 1860), an example of this rare accident. The subject of the case was a boy 12 years of age, subject to severe epileptic convulsions.

"On *April* 10, 1859, his spasms had been recurring every few minutes with great violence; during one of them, while he was held in bed by one of the family by the arms and shoulders, a number of others being in the room, a loud snap was heard by all present. It was thought that the hip "had slipt out of place," and upon examination by the parents, what they supposed to be an extensive swelling was perceived at the upper part of the left thigh. Upon being called in soon after, I recognized it at once as a fracture of the femur; its seat is the junction of the upper with the middle third of the bone. It is stated by the friends, that, at the instant of its occurrence, the thigh was flexed with great force, by the intensity of the spasm on the pelvis, and the fracture was evidently effected by the powerful action of the flexor muscles of the thigh. Assisted by Dr. Richardson, I administered ether, extended the limb, and applied a thick pasteboard splint to the thigh, carrying the bandage around the pelvis, the only idea being to secure union with the least possible inconvenience to the patient, with little regard to shortening.

"*June* 1. Union of the fracture is firm, with considerable bowing and shortening, as was anticipated. A pasteboard splint encircling the thigh, and coated with a solution of shellac to prevent injury from urine and other fluids, is still kept on to prevent a repetition of the fracture, as he still has the convulsions.

"*Dec.* 13. The *right* femur was fractured to-day in precisely the same manner as was the left. Put it up in the same manner. *Jan.* 29*th*. Patient's health has been gradually failing since the occurrence of the last fracture, and to-day he died from gradual exhaustion. No attempt at union of the fracture has taken place. No autopsy could be procured."

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Case of Spina Bifida successfully treated by Iodine Injections.—Dr. BRAINARD records (*Chicago Medical Journal*, Aug., 1860) the following case of this, the sixth in which he has practised this mode of treatment.

June 6*th*, 1860, a female child from Michigan was presented to me for treatment. It was eight months old, well formed and healthy in every respect excepting a tumour situated over the upper part of the sacrum. This tumour measured six inches in circumference around the base, eight inches around its

largest part, and was elevated two inches above the surrounding skin. Its surface was irregular, resembling that of a tomato, a piece of the colon when inflated. It was translucent, elastic at points, and at others the walls were firm like the tissue of cicatrix. A great portion of its contents could be pressed into the spinal column without giving rise to any other inconvenience than making the child cry.

6th. Present Dr. Haydock. I passed an exploring trocar into the sac, through a part of the covering, which was thick, and drew off about one ounce of fluid. I then had the neck of the sac pressed on each side, and injected through the canula a solution containing $\frac{5}{8}$ gr. of iodine, and $1\frac{1}{2}$ grs. iodide potass, in a drachm dist. water, intending to let it flow back through the canula. This, however, it would not do, and I injected two drachms of dist. water, which was allowed to remain. The child, during the operation, was kept under the influence of chloroform. The operation was done at 6 o'clock P. M.

8 o'clock. Skin hot; child starts in sleep as if frightened; takes the breast.

7th. 8 o'clock A. M. Has not slept well; has perspired freely; taken the breast; tumour flaccid.

6 P. M. Seems perfectly well; tumour tense and redder than before the operation.

8th. 12 M. Child seems perfectly well; urinates more than natural; tumour tense and red; child laid on the face and side.

9th. Tumour red and firm; child perfectly well.

10th. Tumour flaccid and pale; applied bands of gum elastic around it.

14th. Tumour much reduced. Introduced into a point where the skin is thick and sound, a common hydrocele trocar, and drew off about two drachms of serum tinged with blood from wounding the internal membrane; washed out the cavity with dist. water, and injected the solution used before, as much as could be pressed in, then washed it out with distilled water and applied isinglass plaster.

During the operation a tape was tied tightly around the base of the tumour so as to cut off the connection with the spinal canal, and the child kept under the influence of chloroform.

The operation seemed at first to produce no sensible effect. About an hour afterwards the child had coldness of the feet and hands. This was followed by some reaction, and this by sweating. The next day there was some redness and fulness of the tumour which had entirely lost its elasticity.

The patient was seen by Drs. Powell and Paoli.

For three days the tumour was tense, firm, and red. After that time it became pale and flaccid.

25th. Applied pressure by a gum-elastic band around the body, and a band of the same material around the tumour. While this remained it was reduced to about one-third its former size.

30th. The tumour is pale, wrinkled, firm, not fluctuating; appears quite solid. Pressure continued by a strip of adhesive plaster passed circularly around it, and the gum-elastic band made for a hernia truss passed around the pelvis, so as to exercise compression upon it.

July 6th. Tumour forms only an innodular mass diminishing in size. The patient was allowed to return home with directions to continue the compression as long as might be necessary to efface the walls of the sac.

"In any similar case," Prof. B. says, "I should desire: 1st, to tap the sac and draw off the serum; 2d, to make compression so as to prevent the iodine from entering the spinal canal; 3d, inject a solution of iodine, of the strength of five grains, and thrice that quantity of iodide of potash to the fluidounce of distilled water; 4th, withdraw the injection, wash out the sac with distilled water; 5th, re-inject the serum, or fill the sac with distilled water. The puncture should be carefully closed after withdrawing the canula.

"When the tumour is not pediculated, so that the solution may be prevented entering the spine, then the rules I gave in the article referred to, seem to me judicious.

"In the case herein reported, no symptoms were produced except those of an

over-dose of the solution, diaphoresis, and diuresis, and except for the difficulty of getting rid of the firm walls of the tumour after the sac was obliterated, the case was not more difficult to treat than a hydrocele."

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Endermic Use of Animal Fat in Typhoid Fever.—Dr. P. DELACY BAKER, of Alabama, extols (*Southern Medical and Surgical Journal*, June, 1860) the endermic application of animal fat in typhoid fever. He conceives that it acts—1st, by keeping "in its normal activity the eliminating function of the skin;" and 2d, by its introduction "into the system by absorption from the skin [it] acts as a direct nourishment to the nervous tissue, and also, by supplying material for combustion, prevents that destruction of tissues which otherwise would of necessity result in the course of a continued fever, or even, in health, without sufficient nourishment to supply the constant waste going on in the animal economy."

Dr. B. states "that this method of softening the skin and restoring its healthy function was first suggested to me in 1854, then just entering the practice, by Dr. E. L. Antony, of Waynesboro', Ga. I was at the time suffering from an attack of typhoid fever, with Dr. A. in attendance. He then declared inunction to be the best and most reliable of all diaphoretics, and during the progress of the disease had it practised upon my skin to the extent of three pints of olive oil. He, however, at the time expressed his preference for an animal fat in the shape of a 'bacon rind,' referring its more efficient action to the fact of its containing salt. I have though, since, by observation and experiment, been taught that the bacon rind is preferable because it is an animal fat, and that the great benefit derived from its endermic use is attributable but in a small degree to its diaphoretic effects, compared with its vastly more important eutrophic property, and that the reason why, in this connection, animal fats are preferable to vegetable oils is that the former are much more easily assimilated to the wants of the system."

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A Work by Professor Hodge on Diseases of Females.—We learn with great pleasure that Professor Hodge, of the University of Pennsylvania, has prepared a work on the Diseases of Females. This work will embody the peculiar modes of treatment which the long and very extensive practice of the Professor has led him to adopt, and which have not yet been published, except in his lectures to his classes. The profession will very anxiously look for the appearance of this work, which we learn is now rapidly passing through the press, and will be speedily published.

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UNIVERSITY OF PENNSYLVANIA—MEDICAL DEPARTMENT.

NINETY-FIFTH SESSION (1860-61).

WILLIAM GIBSON, M. D., Emeritus Professor of Surgery.
GEORGE B. WOOD, M. D., Emeritus Professor of Theory and Practice of Medicine.

SAMUEL JACKSON, M. D.,	Professor of Institutes of Medicine.
HUGH L. HODGE, M. D.,	Professor of Obstetrics and the Diseases of Women and Children.
JOSEPH CARSON, M. D.,	Professor of Materia Medica and Pharmacy.
ROBERT E. ROGERS, M. D.,	Professor of Chemistry.
JOSEPH LEIDY, M. D.,	Professor of Anatomy.
HENRY H. SMITH, M. D.,	Professor of Surgery.
WILLIAM PEPPER, M. D.,	Professor of Theory and Practice of Medicine.

WILLIAM HUNT, M. D., Demonstrator of Anatomy.

The Lectures of the Session will begin on the second Monday of October and close on the first of March.

Clinical Instruction is given throughout the Session, in the Medical Hall, by the Professors, and at the Pennsylvania and other Hospitals.

The Dissecting Rooms, under the superintendence of the Professor of Anatomy and the Demonstrator, are open from the middle of September.

The room for Operative Surgery and the Application of Bandages, &c., is open early in September and throughout the Session, under the supervision of the Professor of Surgery.

Surgical Demonstrator, C. S. BISHOP, M. D.

Fees for the Lectures (each Professor $15)	$105
Matriculation Fee (paid once only)	5
Graduation Fee	30

R. E. ROGERS, M. D., *Dean of the Medical Faculty, University Building.*

SAMUEL PRICE, *Janitor, University Building.*

MEDICAL COLLEGE OF VIRGINIA, AT RICHMOND.

SESSION OF 1860-61.

The Course of Lectures will commence on the first Monday in October, and continue until the 1st of March.

CHARLES BELL GIBSON, M. D.,	Professor of	Surgery and Surgical Anatomy.
DAVID H. TUCKER, M. D.,	"	Theory and Practice of Medicine.
BEVERLY R. WELLFORD, M. D.,	"	Materia Medica and Therapeutics.
A. E. PETICOLAS, M. D.,	"	General and Special Anatomy.
LEVIN S. JOYNES, M. D.,	"	Institutes of Medicine and Medical Jurisprudence.
JAMES H. CONWAY, M. D.,	"	Obstetrics and Diseases of Women and Children.
JAMES B. McCAW, M. D.,	"	Chemistry and Pharmacy.

MARION HOWARD, M. D., Demonstrator of Anatomy.

The recent appropriation of $30,000 to this Institution by the Legislature of Virginia will enable the Faculty to enlarge the facilities for instruction in a most important degree. The illustrations in every department will be multiplied and improved, and a commodious Hospital is now in course of construction, in immediate proximity to the College, which will greatly extend the facilities for clinical instruction. Students will also have access to the wards of the Richmond Almshouse.

The supply of material for Dissection is ample.

Two prizes, of *Fifty Dollars* each, are offered to candidates for graduation—one for the best Essay on any Surgical subject, the other for the best Essay on any subject pertaining to the Theory or Practice of Medicine.

FEES.

Matriculation	$5 00
Ticket of each Professor $15	105 00
" Demonstrator of Anatomy	10 00
Graduation	25 00

L. S. JOYNES, M. D., *Dean of the Faculty.*

PENNSYLVANIA COLLEGE—MEDICAL DEPARTMENT.

NINTH STREET, BELOW LOCUST, PHILADELPHIA.

SESSION OF 1860–61.

FACULTY.

B. Howard Rand, M. D., Professor of Chemistry.
Henry Hartshorne, M. D., " Practice of Medicine.
Lewis D. Harlow, M. D., " Obstetrics, &c.
William S. Halsey, M. D., " Surgery.
Wm. Hembel Taggart, M. D., " Materia Medica.
James Aitken Meigs, M. D., " Institutes of Medicine.
Wm. H. Gobrecht, M. D., " Anatomy.

Theodore A. Demmé, M. D., Demonstrator of Anatomy.

The Session of 1860–61 will commence on Monday, 8th of October, and continue, without intermission, until the first of March.

The Rooms for Practical Anatomy will be open early in September.

A Medical, Surgical, and Obstetrical Clinic is held at the College every Wednesday and Saturday.

Each second-course Student is furnished with a ticket to the Pennsylvania or Philadelphia Hospital, *free of charge.*

Examinations are conducted daily by each Professor in his Department.

☞ Instead of the usual Introductory Lectures, there will be but *one general Introductory;* after which the regular Lectures of the Course will commence *without delay.*

Fees.—Matriculation (paid once only), $5 00; For each Professor's ticket, $15 00; Graduation, $30 00.

LEWIS D. HARLOW, M. D., *Dean,*
No. 1023 *Vine below* 11*th Street.*

LONG ISLAND COLLEGE HOSPITAL, AT BROOKLYN, N. Y.

The Course preliminary to the Session of 1861 will begin on the 18th of February, and the *Regular Lectures* on the 18th of March, to continue sixteen weeks.

REGENTS.

Hon. Samuel Sloan, *President.* T. H. Rodman, Esq., *Secretary.*

COUNCIL.

T. L. Mason, M. D., C. L. Mitchell, M. D.,
Wm. H. Dudley, M. D., J. H Henry, M. D.

PROFESSORS.

Austin Flint, M. D., Practical Medicine and Pathology.
Frank H. Hamilton, M. D., Principles and Practice of Surgery.
James D. Trask, M. D., Obstetrics and Diseases of Women and Children.
R. Ogden Doremus, M. D., Chemistry and Toxicology.
Joseph C. Hutchison, M. D., Operative Surgery and Surgical Anatomy.
John C. Dalton, M. D., Physiology and Microscopic Anatomy.
Dewitt C. Enos, M. D., General and Descriptive Anatomy.
Edwin N. Chapman, M. D., Therapeutics and Materia Medica.
George R. Smith, M D., Demonstrator of Anatomy.

Every facility afforded for Dissection throughout the year.

Clinical Lectures daily, except Sunday, on Medicine, Surgery, and Obstetrics, for which ample material is furnished in the Lying-in Wards and General Hospital under the same roof.

Professor Flint will give careful instruction in *Auscultation and Percussion*, and the *Art of Diagnosis* in general.

Professor Hamilton, in his regular course, will dwell especially on *Dislocations and Fractures*, and in his preliminary course will give a series of *Lectures on Military Surgery.*

As far as practicable, instruction in every department will be by demonstration.

FEES.

Full Course	$100 00
Matriculation	5 00
Demonstrator's ticket	5 00
Graduation	25 00

BOYLSTON MEDICAL PRIZE QUESTIONS.

The Boylston Medical Committee, appointed by the President and Fellows of Harvard University, consists of the following Physicians:—

Edward Reynolds, M. D.	J. Mason Warren, M. D.	John Jeffries, M. D.
D. H. Storer, M. D.	S. D. Townsend, M. D.	Charles G. Putnam, M. D.
J. B. S. Jackson, M. D.	Morrill Wyman, M. D.	Henry J. Bigelow, M. D.

At the Annual Meeting of the Committee, on Wednesday, August 1st, 1860, a premium of Ninety Dollars, or a gold medal of that value, was awarded to John Bell, M. D., of New York, for the best dissertation on the question—

How far does the Microscope assist us in Surgical Diagnosis?

The other premium of the same value was awarded to David W. Cheever, M. D., of Boston, for the best dissertation on the question—

The Value and the Fallacy of Statistics in the Observation of Disease.

The following questions are proposed for 1861:—

1. *Excision of Joints.*
2. *Diagnosis and Treatment of Chronic Pleurisy.*

Dissertations on these subjects must be transmitted, post paid, to Edward Reynolds, M. D., *on* or *before* the *first Wednesday* of April, 1861.

The following are the questions proposed for 1862:—

1. *How far does the Microscope assist us in Surgical Diagnosis?*
2. *On Nausea and Vomiting, as Symptoms—Under what circumstances do they occur, and what indications do they afford as to the seat and character of disease?*

Dissertations on these subjects must be transmitted as above, *on* or *before* the *first Wednesday* of April, 1862.

The author of the best dissertation considered worthy of a prize on either of the subjects for 1861 and for 1862, will be entitled to a premium of *sixty dollars*, or a gold medal of that value, at his option.

Each dissertation must be accompanied by a sealed packet, on which shall be written some device or sentence, and within which shall be inclosed the author's name and residence. The same device or sentence is to be written on the dissertation to which the packet is attached.

The writer of each dissertation is expected to transmit his communication to the Chairman of the Committee, in a legible handwriting, within the time specified.

All unsuccessful dissertations are deposited with the Secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received.

By an order adopted in 1826, the Secretary was directed to publish annually the following votes:—

1st. That the Board do not consider themselves as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.

2d. That in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith.

J. MASON WARREN,
Secretary.

Publishers of Newspapers and Medical Journals throughout the country are respectfully requested to notice the above.

JEFFERSON MEDICAL COLLEGE.

The next Session will commence on Monday, the 8th of October, with a general Introductory Lecture by one of the Professors. The regular lectures will begin the day after. The Session will terminate on the last day of February.

ROBERT M. HUSTON, M. D., { Emeritus Professor of Materia Medica and General Therapeutics.

Institutes of Medicine, etc., ...	By Prof. ROBLEY DUNGLISON, M. D.
General, Descriptive and Surgical Anatomy, .	" JOSEPH PANCOAST, M. D.
Obstetrics and Diseases of Women and Children,	" CHARLES D. MEIGS, M. D.
Chemistry, ...	" FRANKLIN BACHE, M. D.
Institutes and Practice of Surgery, . .	" SAMUEL D. GROSS, M. D.
Materia Medica and General Therapeutics, .	" THOMAS D. MITCHELL, M. D.
Practice of Medicine, ...	" SAMUEL H. DICKSON, M. D.

Demonstrator of Anatomy, . . ELLERSLIE WALLACE, M. D.

Clinics will be held regularly during September; and every Wednesday and Saturday in October, and during the course, Medical and Surgical cases will be investigated, prescribed for, and lectured on before the Class. During the year ending March the first, 1860, a vast number of medical and surgical cases were treated, and above *three hundred* operations were performed; amongst them many major operations—as amputation of the leg, extirpation of the upper jaw and mamma, and several cases of lithotomy.

The lectures are so arranged as to permit the student to attend the clinics of the Pennsylvania Hospital, and of the Philadelphia Hospital.

On and after the 1st of October, the dissecting-rooms will be open, under the direction of the Professor of Anatomy and the Demonstrator.

FEES.

Matriculation, which is paid only once, ...	$ 5
To each Member of the Faculty $15, ...	105
Graduation, ...	30

ROBLEY DUNGLISON, M. D.,
Dean of the Faculty.

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HARVARD UNIVERSITY.

MASSACHUSETTS MEDICAL COLLEGE.

THE Annual Course of Medical Lectures of Harvard University will commence at the Massachusetts Medical College, in North Grove Street, Boston, on the first Wednesday of November, 1860. The regular course will be as follows:—

D. HUMPHREYS STORER, M. D.,	Professor of Obstetrics and Medical Jurisprudence.
JOHN B. S. JACKSON, M. D.,	Professor of Morbid Anatomy.
HENRY I. BOWDITCH, M. D.,	Professor of Clinical Medicine.
OLIVER W. HOLMES, M. D.,	Professor of Anatomy and Physiology.
GEORGE C. SHATTUCK, M. D.,	Professor of Theory and Practice of Medicine.
HENRY J. BIGELOW, M. D.,	Professor of Surgery.
JOHN BACON, M. D.,	Professor of Chemistry.
EDWARD H. CLARKE, M. D.,	Professor of Materia Medica.

RICHARD M. HODGES, M. D., Demonstrator.

Clinical Medical and Surgical Instruction will be given at the Massachusetts General Hospital, with surgical operations.

Collateral special medical instruction will also be given at the Hospital by lectures and otherwise, by Drs. Bowditch, Abbot, and Ellis.

Abundant material is afforded for the study of Practical Anatomy. The room devoted to this department is open day and evening, and lighted by gas.

Fees for the Lectures, $80. Matriculation Fee, $3. Graduation Fee, $20.

Good Board can be obtained at $2 50 to $5 per week. Boarding places provided on application to the Janitor at the College.

Students are requested, upon coming to Boston, to call upon the Dean.

D. HUMPHREYS STORER, Dean of the Faculty,
Oct. 1, 1860. *No.* 132 *Tremont Street, Boston.*